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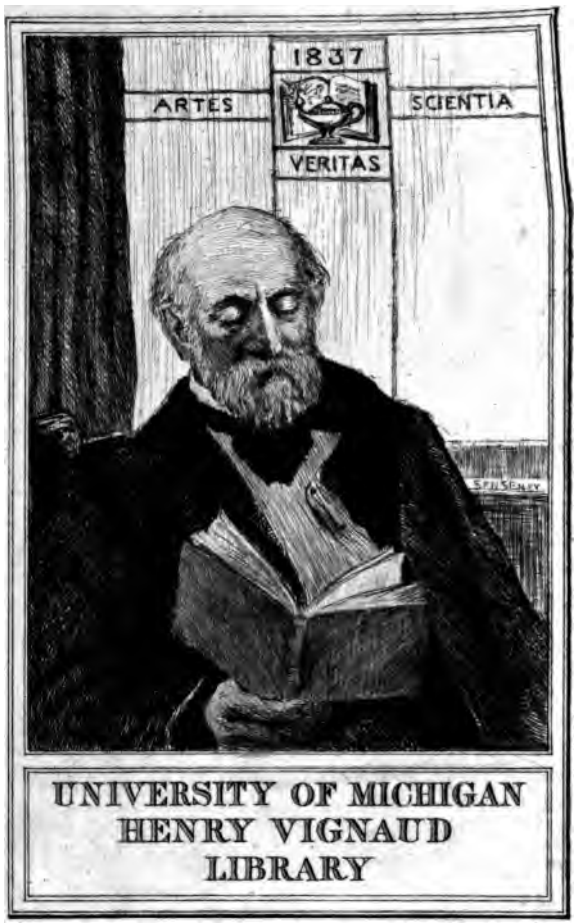
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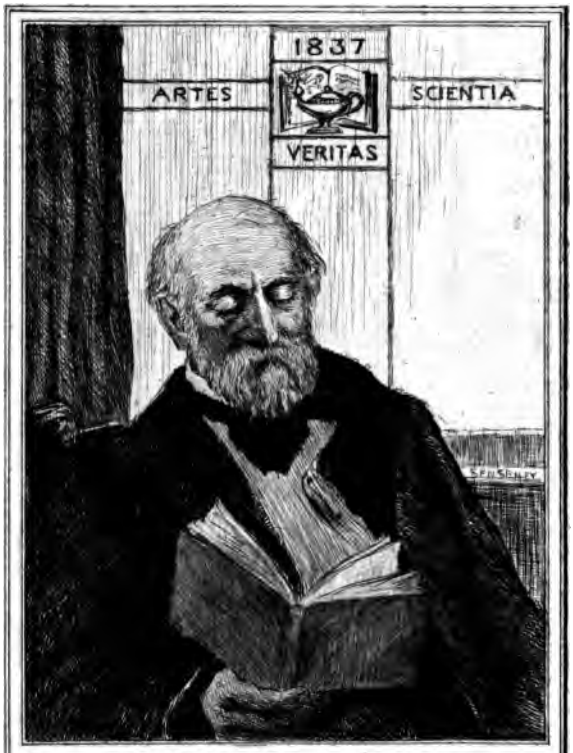

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CHAPTERS ON MAN.

WITH

THE OUTLINES OF A SCIENCE OF COMPARATIVE PSYCHOLOGY.

BY

C. STANILAND WAKE,

FELLOW OF THE ANTHROPOLOGICAL SOCIETY OF LONDON.

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PREFACE.

It is not without a feeling of diffidence that I bring this volume before the public. A work which professes to treat, as this does, of some of the most important subjects that can engage the attention of the human mind, must expect to be severely criticized; and when such a work is a maiden one, the writer may well be excused if he hesitates long before publishing it. As a proof, however, that considerable thought and labour have been expended over its production, it may be stated that the first part of this volume is founded on a memoir which was presented to the Anthropological Society of Paris in competition for the Godard Prize, and that some of its conclusions, in an immature form, appeared in the 'Anthropological Review' for 1863. The Fourth Chapter of Part II., moreover, is, in great measure, a reproduction of a paper that was read before

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the Anthropological Society of London last year; whilst Chapters V. and VI. contain a further development of a subject which was there slightly touched on. These two chapters may appear to be of a disproportionate length, as compared with others treating of subjects equally important; but this was unavoidable, owing to their consisting chiefly of *facts*, which might indeed have been considerably increased in number, with great advantage to the argument, had space allowed. While this volume has been passing through the press, Mr. C. Piazzi Smyth's valuable work, entitled 'Life and Work at the Great Pyramid,' appeared, and it contains many facts which might have been thus used. I refer more particularly to the autumnal 'Festival of the Dead,' and to the ancient 'Pleiades Year,' with which it was associated, Mr. Haliburton having shown both of them to be almost universal. I may add, however, that the mystery connected with the origin of the Great Pyramid will probably find a solution very different from that furnished by Mr. Smyth. With reference to the psychological hypothesis laid down in Part I., I regret that I have not met with Delitzsch's 'Psychologie,' the existence of which I was unfortunately not aware of until the publication of the Rev. J. B. Heard's work, entitled 'Tripartite Nature of Man,' which appeared while this was passing through the press.

The Appendices are not so voluminous as I had at first intended them to be. The fact is that to have carried out my original idea would, owing to professional engagements, have indefinitely delayed the publication of this work. I was not indeed aware at the time it was formed that Mr. J. R. Logan, the Editor of the Journal of the Indian Archipelago, had already published a voluminous comparative vocabulary, embracing the several languages, with many others besides, referred to in the following pages; although, unfortunately, it appears to be scarce here, having been published at Singapore. Nor must I forget the valuable labours of M. Gustave D'Eichthal which appeared in the first and second volumes of the 'Memoirs of the Ethnological Society of Paris,' to whose vocabularies I am indebted for a considerable part of the materials comprised in Appendix I. of this work. I may state with reference to the table of numerals in Appendix II., that it is framed merely to enable an idea to be formed of the relationship, from that stand-point, between the dark tribes on either side of the Indian Ocean, and therefore it is intentionally far from complete. The numerals of certain other peoples are added for the purposes of comparison rather than as intended to indicate a recognized affinity, although in some cases it appears to be clearly traceable—compare, for example, the Eskimo and Poly-

nesian dialects. In addition to the vocabularies given by Mr. Hale, of the United States Exploring Expedition, I have made use of 'Die quinare und vigesimale Zählmethode,' by Dr. Pott, Dr. Pritchard's anthropological works, Dr. Latham's 'Elements of Comparative Philology,' Mr. Clarke's 'Specimens of African Dialects,' Migne's 'Dictionnaire de Linguistique,' and various works referred to in the succeeding pages, in the preparation of Appendix II.

In conclusion, I have only to express my acknowledgments to my friend Dr. Charnock, one of the Vice-Presidents of the Anthropological Society of London for his assistance in the completion of the Appendices, and for the table of interchangeable consonants for which I am indebted to him; and also to my friend James Butler, Esq., of Lincoln's Inn, not only for his assistance in the correction of the proof sheets, but also for many valuable suggestions made while this volume was passing through the press.

3, Raymond Buildings, Gray's Inn,
1*s January*, 1868.

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specially to any of the scientific terms employed if it were not that some of them are used in a sense so different from that associated with them by the modern school of English metaphysicians. The terms more particularly referred to are *intuition, thought,* and *reflection.* By *intuition* I understand that act or state of the mind which accompanies the recognized presentation of an object immediately, *i.e.* without the intervention of "thought;"—and intuitive action is, therefore, synonymous with *instinctive* action. By *thought* I mean that operation of the mind which takes place in relation to the object, as an individual, after the act of perception, which is the result of intuition. I say in *relation* to the object, for the perception is still intuitive, the thought being about the surrounding circumstances by which the action having reference to the object is to be governed. The term *reflection* I use in its popular sense of thinking *about* an object, whether external or internal, and, as I shall endeavour to show, it differs from thought proper rather in the nature of that about which it is active than in the nature of its activity.

It is evident that these several terms have very different meanings when used by Mr. Mansel. His definition of *intuition* is "that state of consciousness in which the actual presence of an object, within or without the mind, is the primary fact which leads to its recognition as such by the subject." This explanation does not apparently differ from that given above of the same phenomenon. That they do differ, however, and that materially, is evident from the great range of phenomena embraced by intuition, according to

Mr. Mansel's definition of it. The extent of its application is seen by comparing it with that given to *thought* by the same writer, who defines the latter as "that state of consciousness in which the presence of the object is the result of a representative act on the part of the subject." Thought and reflection are, therefore, the same act, and their exercise ends in the "knowledge of the object" as such. According to Mr. Mansel, this thought or reflection cannot be formed without the use of language signs, which are the representatives of general notions, about which the thought or reflective consciousness is primarily active. It is evident from this that *intuition* is supposed to include every operation of the mind which is independent of the use of representations or language symbols, and it is equally clear that, according to this view, the lower animals cannot possibly think. But is it not also certain that thought must be equally denied to most of the actions of man? The use of language symbols has become so habitual to us that we fancy they are absolutely essential to the exercise of thought. Our own experience, however, assures us that, in relation to present objects at least, they are not at all necessary. If it be so, indeed, most of man's every-day actions must, along with all those of the lower animals, be altogether instinctive,—as conception, judgment, and reasoning are different phases of thought, and therefore dependent on language representations. This is, however, quite inconsistent with the evident intelligence of the lower animals, intelligence being itself proof of thought; besides which, before those representative

symbols on which thought is said to depend can be formed, there must be the exercise of that very faculty to enable the object named to be recognized. The error Mr. Mansel has fallen into seems to arise from a neglect to distinguish between the several objects of mental activity. This activity has two relations—the external action and the object towards which it is directed. It may be said that the knowledge of the object itself is at first simply intuitive, but in addition to the intuition is a thought in relation to the object, or, in other words, about the action by which it is to be attained. So that, in reality, what Mansel calls intuition is, except in its lowest instinctive phase, *thought*, and what he terms thought is more properly characterized as *reflection*, to distinguish it from the simpler mental activity, which, however, differs from it fundamentally, as will be shown conclusively hereafter, only in the nature of its objects. I have thought it necessary to point out here what I conceive to be a fundamental error in Mr. Mansel's system of Metaphysics, as otherwise much confusion might be caused in the minds of readers accustomed to associate ideas with the scientific terms above referred to, so different from those which they are intended to convey in the following pages.

PART I.

CHAPTER I.

INTELLIGENCE AND NERVOUS DEVELOPMENT.

ANTHROPOLOGY, viewed as an absolute science, has reference to man simply *as such*,—a creature possessing certain principles of being in himself independent of all other creatures. It is, however, impossible to separate man from nature, and relatively, therefore, Anthropology may embrace within its scope almost all other sciences. To perfectly understand man, we must have a knowledge of the things which surround him; for, not only is he continually influenced by them in his gradual progress to civilization, but they have the most intimate relation to him considered as one of the phenomenal developments of nature. Man, as the highest in the series of these developments, recapitulates in himself all those that have preceded him. Connected with all creatures, he must yet be the most closely related to those who are the nearest to him in the scale of being.

It is to the animal world, therefore, we must look for the phenomena, the consideration of which may help us to explain the problems of our own nature. Very little attention shows us so great an analogy between the physical and mental phenomena of man and those of other members of the animal kingdom, that we are compelled to believe that the relation between them is not merely superficial, but is founded on the very principles of their being. This fact is expressly admitted when, in the science of animal physiology, man and the lower animals are classed together, as though the phenomena of their several organizations were analogous and subject to the like laws and interpretations.

Of the several sciences with which the student of "man" has to deal, Psychology is in the most unsatisfactory state. It would hardly be beyond the truth to ascribe this condition of mental science to the little attention which has been paid to the phenomena displayed in the mental activity of the lower animals. It will not be denied, at all events, that a strict examination of those phenomena is absolutely necessary to the formation of a perfect science of psychology. Even in relation to man alone such an examination may be of essential service. For if we can ascertain the principles which guide the mental life of the lower animals in its activity, we may be able, by the application of the knowledge thus gained, to ascertain in what such principles differ from those which operate in the mental life of man, and thence perhaps to discover the cause of such difference. It may, however, be objected, *in limine*, that we can have no actual knowledge of the

inner life of the lower animals, and, therefore, no certainty that the principles which guide its operations are really the same as those which show their activity in the life of man. This objection, however, can now have no weight. The law which refers like effects to like causes is as applicable to the explanation of mental phenomena as to that of physical ones; and if we see that the actions of the lower animals are, under like conditions, similar to those of man, we shall be justified in ascribing them to the operation of like principles of mental activity.

The phenomena of the animal life may be divided into internal or *subjective*, and external or *objective*. As we can know nothing of the former directly, we must judge of them by their results as seen in external action. This action, although sometimes it may appear to be purely emotional—without any objective aim—is never so in reality. It always has reference to some particular end to the attainment of which it is directed. As its highest generalization, all animal action may, indeed, be asserted to have only one and the same object. Whether it be the simple activity of the purely instinctive creature, or the apparently complex action of the higher forms of animal life, the motive for each is the same—the satisfaction of a feeling of want, be its phase the indefinite sensation which accompanies instinct, or the fully-developed desire which shows itself as the result of thought. All animal action having thus the same general aim, we must look for that which gives to its phenomena their distinctive value, either in those phenomena themselves, or in the mental activity with which they are accompanied. There is, however, no

actual superiority observable in the actions of the most highly organized member of the animal kingdom over those of the creature with the most simple structure. In each case, that which is done is the best fitted to attain the desired end, and that which, under the like conditions, every other animal would perform. To prove the truth of this assertion, it is necessary only to refer to the resemblance between the mechanical contrivances used for a specific purpose by many of the creatures the lowest in the scale of animated being, and those employed by man for a similar object. How often has an ingenious mechanical contrivance been found to be no invention, but simply a reproduction of that which nature had long before revealed to some of its humblest subjects! All animal action having thus the same general end, and its external phenomena being always the same under like conditions, we are forced to seek for that which gives superiority to one action over another in the mental activity to which all alike owe their origin.

The objective activity of the animal life has a direct relation to the physical organization through which it is revealed. Those animated creatures which possess the simplest nervous structure show the least diversity of action in supplying the wants of their physical nature, whilst those whose nervous structure is of the most complex kind show the greatest diversity in such action. Mental activity—that on which external activity depends —may, in fact, be declared to bear a direct ratio to nervous development, or rather to the multiplicity and perfection of the organs of sense, which are the special develop-

ments of the nervous system. Let us take the Amœba, a creature of a jelly-like substance, showing no trace of a nervous *structure,* as an example of the lowest animated forms, and we find no special sense organs, but merely a general sensibility necessary for the reception of impressions from external nature; and such creatures have none but purely *instinctive* action. If we advance a little higher in the scale of being, we see certain creatures, of which insects may be taken as representatives, whose organs of special sense might be said to be limited to that of sight—the others they possess being only imperfectly developed,—and whose actions, although still instinctive, are accompanied by a perception of external objects. Advancing still higher, we find animals, among whom may probably be classed the three lowest divisions of the Vertebrata, which, while possessing all other organs of special sense, have either no special organ of touch or one very inferior in its functional structure; and the mental activity of these animals shows itself chiefly in *imitative* action. The highest of all animated creatures are those which have not only a full development of the organs of sense, but an operation of them as perfect, with one exception, as that of the special sense organs of man, and this combined with external action often so closely resembling that of man himself as to lead us to ascribe both to the activity of the same mental principle—that of *reason.*

Animal intelligence may, then, be further said to bear a direct ratio to the knowledge of external nature attainable,—the organs of sense being the media through which that knowledge is gained, and its range becoming

the more extensive as the number, or the perfection of the operation, of those organs is increased. The truth of this is evident when we consider that all mental activity is primarily dependent on the perceptions derived through external sensation, which perceptions must be the more numerous as the media of sensation are multiplied or become more active. This truth requires, however, to be qualified in relation to the life of the lower animals, as their *objective* knowledge, however perfect and refined may be their nervous structure, is limited to one organ of sense—the eye. This is only what a consideration of the nature of animal action would lead us to expect. The primary aim of this action is the satisfaction of the wants of the physical organism, and it is the eye alone which can give a perception of the objects the possession of which can supply those wants. The eye is, therefore, the organ of special sense first developed, and the one which soonest reaches it most perfect operation. The eye may thus be described as the *objective* sense organ, whilst the other organs of sense, being able to give a perception, not of objects themselves, but only of certain sensations due to their influence, may be termed *subjective*. Judged of by their relation to the aim of animal life, the eye gives the knowledge of the *object* to be gained, while the other sense organs give a perception of the *means* of attaining it. However perfect may be the operation of the subjective senses, until an object has been perceived by the eye, its existence can never be known to the lower animals. When an object has, however, been once seen, the image of it may be revived in the mind by association with sensa-

tions received through the organs of smell or hearing, which sensations, being themselves renewed, may be used as guides to the re-discovery of the object. The senses of smell and hearing have, therefore, relation to the means of attaining a particular end, rather than to the object to be gained, the perception of which is the province of the eye. This relation is still more evident with reference to the sense of taste, and to those organs which take the place among the lower animals of the human hand. Some explanation of this is seen in the fact that, while the action of the eye is not necessarily accompanied by any distinct sensation of pleasure or pain, the operation of each of the other sense organs depends for its efficacy on the communication of one or other of such sensations, and indeed cannot be observed without it.

If, then, relation between the subjective organs of sense and the perception of the means of attaining a particular end really subsists, we can understand how it is that the more perfect the development of those organs, the more intelligent must be the animal possessing them. The lower animals may be said, therefore, to differ in intelligence among each other only according to the greater or less range of action possible for obtaining a certain object,—the mode of such action being dependent on the teachings of the subjective sense organs. In other words, the lower animals do not differ in the knowledge of the object towards which their external activity is directed, but merely in the perception of the means by which that object is to be gained. That such is the case is evident from the com-

parison already made between the physical organizations and the mental activity of various classes of animated creatures. Those animals which are the lowest in the scale of being possess no special organs of sense, but merely a general sensibility, and they have, therefore, no actual perceptions, either objective or subjective, and show in their actions the operation of pure instinct. Those creatures who, possessing the organ of sight, have objective perception, and yet, having the other sense-organs very incompletely developed, possess no subjective perception, and, therefore, no knowledge of modes of action, are also instinctive in their external activity. Animals having only a limited knowledge of modes of external activity, through either the imperfect operation, or the imperfect development, of the subjective organs, show in their actions the influence of imitative thought. Finally, those animals who have full development and perfect activity of the subjective sense organs, and, therefore, a greatly multiplied perception of the means by which the object presented to the eye may be obtained, are said to be guided in their actions by reason.

With man, we see a relation between external action and nervous development similar to that observable among the lower animals. Not only may all human action be shown to have for its aim the satisfaction of some feeling of want or desire, but when that want or desire has its source in the physical nature, the action by which it is supplied has analogy to that which, under like circumstances, other animals perform. The first action of the new-born child is purely instinctive, for,

its organs of sense not being yet perfectly developed, it can have no objective knowledge, and if it could form some notion of its wants, it could have no perception of the means of satisfying them. When the sense-organs first become perfect in their operation, the child is yet merely imitative in its action, as it can judge of the proper mode of conduct only by observation of the actions of those with whom it comes in contact. Imitation soon, however, gives place with man to that external activity which is the result of reasoning. When that stage is reached, the perfect operation of the several sense-organs is accompanied by a perception of more diversified modes of attaining a desired end, the reason itself being shown in the formation of a judgment of the greater propriety of a particular line of conduct. It may, then, be laid down as a certain truth, that both animal and human action become the more intelligent as the media of communication with external nature become more perfect and diversified, or as the means of satisfying the wants of the physical organism are multiplied, consequent on the observation of the teachings of the subjective organs of sense.

CHAPTER II.

CORRELATION OF THE MENTAL FACULTIES.

THE several phases of mental activity observable among the lower animals have been divided into instinct, imitative thought, and reasoning. This is a division which agrees with the progressive stages of human intelligence, and the analogy between them is evidenced by the resemblance which the special nervous developments of the inferior animals bear to those of man. Before attempting to ascertain the principle of being to which these mental faculties belong, it will be advisable to show clearly their mode of operation, and to explain, if possible, their true relation to each other. All external action is necessarily preceded by the formation in the mind of a judgment of relation between a certain end desired to be attained and the means of attaining it. Even in *pure* instinct—that which is not accompanied by perception, even of the object towards which action is directed—there must be the formation of such

a judgment, for the very certainty of instinctive activity is owing to the intuitive perception of the perfect fitness of a particular action for attaining the desired end. In imitative and rational thought, however, the formation of such a judgment is more apparent, as the actions to which they lead are performed for the *express reason* that they are judged to be fitted for gaining a particular object presented to the mind. In this act of judgment we have a fundamental point of agreement between the several mental processes.

In what these processes differ it is not so easy to determine. The absence of thought is usually considered a sufficiently distinctive mark of instinct, while reasoning is said to differ from simple thought in that it is accompanied by comparisons and deduction. If, however, every mental operation is accompanied by an act of judgment, how can we deny thought to instinct, and, if reasoning result merely in the formation of a judgment, how can we affirm that it is anything more than mere thought? Even the comparison and deduction which are supposed to be the distinctive marks of reasoning are not peculiar to it. For, as in all animal mental activity resulting in external action there is a judgment of fitness of the action to attain the desired end, there must also be, even in instinct, a comparison of the means with the end desired, and, in fact, a process of reasoning. Not that the comparison or the reasoning is observed—they are, in fact, intuitive. It may be doubted, however, whether the comparison is more observed or less intuitive in animal reasoning itself. If we analyse such a mental operation, we see that it

is accompanied by a thought of past experience for the purpose of applying it to the overcoming of a present difficulty. In this mental process there is no actual comparison, but merely an instinctive application of past experience to present action. In its most simple form such action is termed imitation. Exactly the same operation, however, is observable where two or more means of attaining a desired end are presented to the mind, and a choice made of one of them. For, however numerous those modes of action may be, a similar process is gone through with each of them separately. The past experiences are presented to the mind, and the best mode of action intuitively fixed on, without any comparison between the several modes themselves. There is in reality no such process in animal reasoning as that intended by "comparison,"—such reasoning being simply a judgment of relation instinctively formed on the presentation to the mind of certain objects of thought, an increase in the number of which renders the operation the more complex, but does not alter its character.

If this explanation of the reasoning process be correct, it does not differ essentially from that pursued in instinct or simple thought. For, as we have seen, each of these processes is necessarily accompanied by the formation of a judgment, which must have been preceded by the presentation to the mind of certain objects of thought, the mutual relation of which is to be ascertained. The difference between instinct and simple thought is, that, whilst in the former, not only the judgment, but also the perception of the objects of

thought, is wholly intuitive, in the latter that perception, although limited, is actual, and the formation of the judgment is alone intuitive. It is in the nature and degree of thought perception, the distinction between the various mental processes must be sought.

As was before pointed out, there is an intimate relation between mental activity and nervous development; and, as all external action is, with the lower animals, directed towards the satisfaction of a feeling of want, the mental activity which ends in action must with them have relation to the *means* of supplying such want, those means themselves depending on the complexity of the nervous structure. It is necessary to repeat that, with the lowest forms of animal life—being those in which the nervous system is of the most simple nature—there is no actual perception, either of the object towards which external activity is directed, or of the means of attaining the desired end. Those creatures which have the lowest phase of special nervous development, particularly the eye, perceive the object, but have no thought as to the means which have relation to its attainment, and they must, therefore, be classed among instinctive creatures. Animals which possess a more complex nervous structure, have also a limited knowledge, by the aid of memory, of modes of action, combined with a perception of the objects towards the obtaining of which they are directed, and with them the reasoning process is seen in its simplest phase of activity as imitation. With those animals which are guided by reason in their actions, and which have all the organs of special sense in almost perfect operation, there

is an increased mental activity in relation to the means of satisfying the wants of the animal nature. The object towards which the mental activity is directed, and that alone, is perceived equally by all creatures whose organization exhibits a greater or less degree of special nervous development.

The universality of this objective perception shows that intelligence has relation to the knowledge gained through the activity of the *subjective* sense-organs, and it is wrong, therefore, to refer actions to intelligence merely because if done by man they would be referred to that source. Forgetfulness of this has led to great error in the estimation of the mental activity of many of the lower animals. Insect action, often so marvellous in the perception of its results, may, on the principles here laid down, be without hesitation ascribed to instinct. The real explanation of the mental activity of, for example, the ant, is that it has an instinctive tendency to do certain things required by the necessities of its nature in a particular way, but, while it has a perception—as inseparable from the possession of the eye—of the object towards which its activity is directed, it has no actual thought of the means by which the desired end is to be attained. This co-operation of instinct with perception of the object explains the change which takes place in insect action, when, owing to altered conditions of existence, the tendencies of instinct are prevented from having their natural operation. That it is not reason which points out the mode of dealing with these altered conditions, is evident, as well from the perfection of the substituted

operation, as from the fact that it has for its ultimate aim the very same object as the action of which it takes the place.

The true distinction between the several phases of mental activity called instinct, simple thought, and reason, seems to be as follows:—In those creatures which are purely instinctive in their actions, the only medium for the reception of impressions from the external world is a general sensibility, and the mental activity aroused in sensation is, therefore, simply subjective and indefinite. A higher type of instinct, which may be termed *mixed instinct,* is that in which, in addition to indefinite subjective activity, a *definite* activity is aroused as the result of the objective perception gained through the medium of the eye. In *simple* or *imitative thought* the mind, as the result of fuller nervous development, is active, not only about the object presented to the eye, but also, although in a limited degree, about the sensations received through the subjective sense organs, being those which teach the qualities of objects in relation to the internal sense. Finally, *reason* is that mental operation which shows its activity when, all the organs of special sense being developed, the objective perception is combined with a full recognition of the sensations of the several subjective sense-organs, and subjective perception itself has consequently become much more diversified.

It has already been shown that all action is preceded by a judgment of relation, and the superiority of reason over mere imitation consists in this, that while the judgment in the latter case has reference to two perceptions merely—the objective and a subjective one,—rea-

son is a judgment of relation between the objective and several subjective perceptions. Both imitation and reason thus become reduced to the perception of the relation between two or more objects of thought,—reason being distinguished only by a greater multiplicity of those objects, or rather of their observed relations, considered with reference to the end towards which the resulting action is directed. In both imitative and rational thought there is the same *objective* perception, the superiority of reason being in the multiplicity of its *subjective* perceptions; and as the objective is that with which all other perceptions have to be compared, and more than two of those objects cannot be compared at the same moment, reason is in reality merely several such mental operations as that which takes place in simple or imitative thought following quickly one after another,—in other words, the forming of *several* successive judgments of relation instead of a single judgment.

Imitation and reason differing from each other only in the number of the objects of thought about which they are active, it may be possible to show that instinct differs in no other way from those mental operations. It was before observed that instinctive action is itself necessarily accompanied by the formation of a judgment of relation, and also that there may be great apparent intelligence associated with objective perception—as in the actions of certain insects,—and yet, there being no subjective perception or knowledge of *means*, those actions are simply instinctive. In such a case as this, which is one of *mixed instinct*, the judgment of relation is between an objective perception and some

other object, or some principle of mental activity, which, not being derived from an external source, must be in the mind itself. As, therefore, in mixed instinct there is an actual objective perception combined with the formation of a judgment, we are justified in asserting that the difference between this form of instinct and simple thought, and, therefore, between the former and reason, is consequent merely on a difference in the nature of their *subjective* objects of thought, and not on any mental dissimilarity. There is more difficulty in proving a similar connection between *pure* instinct, in which there is no actual perception whatever, and reason or simple thought. Even in this case, however, the proof is not impossible. All action being necessarily preceded by a judgment of relation, pure instinct must have some object of thought for its mental activity, although, owing to the absence of *special* media for receiving impressions of external objects, they are unrecognized. The difference between pure and mixed instinct is, in fact, simply one of *objective* sensation, that which has relation to the subjective senses being wanting in both of them. This difference may perhaps be thus explained. The general sensibility of the purely instinctive creature, although it does not give an objective perception so defined as that received through the eye, does give *some* perception—such a one as through its indefiniteness or indistinctness answers to the nervous development with which pure instinct is associated. That the operation of general sensibility is accompanied by a notion, however vague it may be, of the object presented to it, is evident from the fact of the sensation being followed by external action; for, there could be no

response to the sensation if the object were not "perceived," understanding that term in its most general sense. Perhaps we shall not be far wrong in saying that, as with the higher animals the perceptions communicated through the subjective senses, as distinguished from the eye, give merely an indefinite notion of something *acting* only and not existing, so the perception conveyed by the *general sensibility* to the instinctive creature, is not of an object existing, but merely of an *undefined something* operating through that sensibility.

The relation between instinct, imitative thought, and reason may, however, be stated in another way. In instinct, the action makes instantaneous response to the sensation which arouses mental activity. In simple thought, not only actual objective perception, but a judgment of the relation of the sensation accompanying it to a past sensation, intervenes between the perception and the resulting action. In reasoning, both the perceptions and the accompanying judgments formed in the mind are multiplied, and, therefore, the external action resulting from this phase of mental activity is necessarily less rapid in its response to sense impression than in either imitation or instinct. Viewed in this light, the difference between the several phases of mental activity resolves itself into one of duration between the original sensation and the resulting action, which follows the more slowly or rapidly as the objects of thought, about which the mind becomes active in relation to the sensation, are few or many. The nature of this connection between instinct, thought, and reason is best observed in the mental state or phase of activity called *habit*. Whenever an action has been often repeated, whether it

had its first origin in imitation or in the exercise of rational thought, it has a tendency to become habitual,—that is, to be performed without any observed. thought with reference to either the object or the means of attaining it. The first stage of habit is that in which it is accompanied by *objective* perception—the perception of the *mode* of action being lost; and in this stage it is analogous to mixed instinct. When, however, the action has been often repeated, objective perception itself is lost, the action being then performed without the slightest apparent thought. In this phase habit is analogous to pure instinct. In the phenomena of habit we thus have some clue to the nature of the connection between instinct and the other forms of mental activity. In reason, the objects of thought are at first perfectly observed, and the judgment as to their relation knowingly formed and acted on. When a particular action has been several times repeated, the judgment of relation is formed on simple presentation of the object by the unobserved application of principles already formed in the mind. The objective perception itself may, however, be also lost, and then the judgment is formed without any observed presentation to the mind of any objects of thought. In this stage the rational process has become habitual and undistinguishable from that pursued in pure instinct. *Habit* may, therefore, be defined, in relation to its object, as acquired instinct; and *instinct* itself may be denominated innate habit; instinct and habit differing only in the fact that whilst the former may precede objective perception, the latter must succeed it.

CHAPTER III.

SOURCE OF MAN'S SPECIAL INTELLIGENCE.

It has been thus shown that all the operations of the animal mind may be reduced to a simple activity, which differs in its several phases only in the nature and multiplicity of its objects of thought, or in its duration before resulting in external action. Psychological unity requires that such an explanation should be as applicable to the mental phenomena of man as to those of the lower animals. Not only must the intellectual superiority of civilized man over the savage be due, to some extent at least, to the greater multiplicity of his objects of thought, but that of man generally over the lower animals must be due to the same cause. The actions of the lowest races of mankind show no such peculiarity when compared with those of the animals immediately below them, as to lead us to refer them to the operation of any special phase of mental activity. In fact, the actions of both have the same aim—the supplying of the

wants of the physical nature—the difference between the two cases being in the greater variety of the actions performed by savage man consequent on the increased multiplicity of the objects of thought presented to the mind, and the consequent greater choice of means for attaining a desired end. The highest mental process which accompanies the actions of uncivilized man is that of reason, which is also the highest phase of the mental activity observable in the phenomena of animal life. In *civilized* man, however, there is not really any peculiarity of mental operation, although at first sight it may appear to be otherwise. All human action is directed towards the supply of some one or other of the many wants of the physical nature, or towards the gratification of the desires aroused in the mind. Thought activity has then the same general aim with both the civilized and the uncivilized man; and the superiority of the first over the latter must be sought, not in any peculiarity of mental faculty or operation, but simply in the possession of a greater diversity of objects for thought activity.

It cannot be doubted that the highest efforts of human reason may be reduced to a simple comparison of certain objects of thought, or rather to an instinctive judgment of relation on the presentation to the mind of such objects, the mental process being exactly similar to that pursued in animal instinct or reason. Nevertheless, although the superiority of human reason is due in great measure to an increased multiplicity of objects of thought, it is evident, from the apparently infinite capacity for development the human mind possesses, that we

must look for some other cause for man's superiority than the mere *multiplicity* of such objects. In fact, this phenomenon itself requires explanation, when we consider the similarity between the special nervous developments—the avenues through which the mind first gains its perceptions—of man and of the inferior animals the most nearly allied to him in physical structure. Perhaps in the connection between intelligence and nervous development we may discover some explanation of man's superior thought objectivity.

We have already divided the organs of special sense, relatively to the final end of all animal action, into *objective* and *subjective*,—the former being that by which an object is perceived to exist, and the latter those which are affected by the properties of the object, and which may be said to have relation to the means by which it is to be gained. All animals having any special nervous structure have the objective sense, and their varying degrees of intelligence must, therefore, depend on the different degrees of development and activity of the subjective senses. The operation of these senses alone, however, can give no knowledge of the actual existence of the objects which give rise to the sensations received through them. The lower animals can never, therefore, through the subjective senses, attain to more than an indefinite perception of something affecting them. In the keener or more definite perception of subjective sensations, and in the power man alone possesses of distinguishing the objects of purely subjective perceptions as *existing*, and not merely as acting, we have one source to which we may look for the origin of man's superior

thought objectivity. By this power man's knowledge is extended to all the organs of sense, instead of being limited, as in the lower animals, to the sensations conveyed through the eye.

Important, however, as the possession of such a power may be when the mental development of the child or savage has to be considered, it is alone quite inadequate to account for the superior mental activity of the civilized races of man. Its recognition as a source of man's mental activity is important chiefly as it leads to that of a much higher truth. The sensations received through the subjective sense organs give the knowledge of the existence of certain objects, the activity of which results in those sensations. But how are these objects known to exist? Man's subjective sense organs can hardly be said to act in the same way as the eye, or by direct perception. Their teachings are indirect, and may be described rather as the inferences of reason than as actual perceptions. Man judges of the unseen by the seen, and his natural curiosity compels him, when he feels certain sensations the source of which is hidden from him, to seek for some cause to which they may be referred,—one, it may be, which he has already seen associated with like effects, but, if not, one which he considers to be sufficient to produce them. The subjective senses have to do with bodies, not as simple objects, but as objects having certain active properties, it is, therefore, to the operation of these properties the impressions conveyed through the subjective sense organs are primarily referred. The sensation of heat is not referred to the action of fire, or any other source of heat

in particular, but to that of the general property of combustion. It is the same with all other subjective sensations; and if no substance be known having the properties necessary for their production, they are nevertheless referred to the operation of those properties as inherent in *some* substance which must exist, although unperceived. Probably, in the earliest and lowest stages of human existence, subjective sensations are ascribed directly to the action of certain objects, without any notion of the existence of the properties by which they act. Children and savages have, indeed, no knowledge of qualities in relation to subjective sensations, but recognise them only in relation to sensations aroused through the medium of the eye.

It is, however, to the knowledge of qualities *as such*, from whatever source derived, particular attention must be drawn. For, not only is it that which gives man an actual idea of the existence of objects which he cannot see, but it is that to which his marvellous superiority of thought objectivity is wholly due. While the lower animals know an object merely as an *individual*, and, if they have any notion of a particular quality, recognise it simply as an object *so* affected—the perception being of the *object* as possessing that quality—man has the power of subtracting the qualities of bodies, of considering them as separate from the objects to which they belong, and of making of each of them a distinct object of thought. This analysis may be carried so far, that the object itself may be lost sight of in the thought of its qualities, supposing it to have any existence apart from them.

It may thus be asserted, with some show of reason, that the lower animals have no true objective knowledge at all. It is evident, at all events, from what has been said, what little vitality mere animal knowledge can have, and how limited it must necessarily be in its range of development. It is very different with man. His perception of qualities, as distinct objects of thought, not only almost indefinitely extends the range of his objective perception, but it gives so great a vitality to his mental activity, that the development of human knowledge is infinite in its possibility. While the perception is merely of individual objects it is impossible to form generalizations, since each individual must be seen to differ from others to preserve its individuality in the perceptive mind. But when the mind has the power of recognising a quality as separate from the body to which it belongs, it is enabled to form a judgment as to the resemblance between two or more objects, evidenced by their possession of that quality, and then to form a general idea comprising all objects thus affected. The objects of human thought are thus not only greatly multiplied, but they gain a generative property which doubtless renders them capable of infinite development.

The perception of qualities of objects is, however, accompanied by a complete change in the *nature* of objects of thought, as well as by their increased multiplicity and improved quality. The lower animals perceive objects as individuals, and the image of such objects being impressed on the brain, thought is of those images, deprived of which the lower animals

could have no real thought activity. The want shown by purely instinctive creatures of the exercise of true thought is due to the absence of those mental images; and it is owing to their necessarily limited quantity that animal thought is always comparatively so inactive. Even the highest of the brute creatures are thus limited in their perceptions, for they can form no image of subjective impressions, and, therefore, can have no thought of them independent of present sensation.

Man has a similar power of thinking by means of picture signs, but he possesses it in a much higher degree than other animals, seeing that he can use those pictures as symbols of qualities, as well as of the objects in which those qualities inhere. The child and the savage, having but few ideas, doubtless think chiefly by the aid of such mental pictures, which, however, form but a very small part of the objects of human thought. For the perception of a quality, if particularly striking to the mind, is instantly accompanied by an *expression* of emotion, which, by association, may, and in many cases does, come to be recognized as a sign or symbol of that which called it forth. In the infancy of man, such an expression has at first reference primarily to the object to which the particular quality that has attracted the attention belongs. Primitive language signs, however, being in their very nature—as expressive of qualities—general terms, are applicable to all objects having like qualities, and by degrees other signs become necessary to distinguish similar objects from each other. It is in this manner, chiefly, names lose their original distinctive signification; and general ideas, by the ac-

tivity of thought, are developed from the simple ones which have first sprung from the emotional nature; or, rather, it is thus that the expressions which the mind instinctively gives utterance to, assert their true significance as symbols of general truths.

CHAPTER IV.

ORIGIN OF HUMAN LANGUAGE.

LANGUAGE is so often asserted to be, not only the distinctive faculty of man, but also the sole cause of his superiority over the lower animals, that a more particular inquiry into its origin is essential to the proper treatment of the subject dealt with in these pages. Whatever may have been the origin of human language, it cannot be doubted that every race of mankind, however uncivilized, has the faculty of speech. Not merely the utterance of such instinctive emotional sounds as those which go to make up brute language, and which are never, even by the most cultivated animals, used to denote *objects*, but that symbolism in words of external nature which must be at the foundation of all rational language expression. It is true that certain animals can utter articulate sounds, but they cannot *originate* rational language, and the articulate sounds they use are necessarily, therefore, merely imitative.

The origin of human language is usually explained on either the theory of onomatopoiea, or imitation, or that of interjection. On the former, in the words of Professor Max Müller,* "it is supposed that man, being as yet mute, heard the voices of birds, and dogs, and cows, the thunder of the clouds, the roaring of the sea, the rustling of the forest, the murmurs of the brook, and the whisper of the breeze. He tried to imitate these sounds, and finding his mimicking cries useful as signs of the objects from which they proceeded, he followed up the idea and elaborated language." The interjectional theory is that the beginnings of human speech were "the cries and sounds which are uttered when a human being is affected by fear, pain, or joy." It cannot be denied that many words have had their origin in the imitation of natural sounds, and that *some* words, at least, have had an interjectional origin. Professor Max Müller, however, denies the sufficiency of onomatopoiea and interjection to explain the phenomena of language. He asks,† "If the constituent elements of human speech were either mere cries or the mimicking of the cries of nature, it would be difficult to understand why brutes should be without language. There is not only the parrot, but the mocking-bird and others, which can imitate most successfully both articulate and inarticulate sounds; and there is hardly an animal without the faculty of uttering interjections." To escape the difficulties attendant on the imitative and interjectional theories, Professor Max Müller seeks for some more potent cause for the origin of the *roots* to

* Lectures on Science of Language, 1st Series, p. 365. † Ibid. p. 377.

which he affirms all language may be reduced. Following the dictum of Locke,* he asserts that, "the having general ideas is that which puts a perfect distinction betwixt man and brutes, and is an excellency which the faculties of brutes do by no means attain to." He adds,† "If Locke is right in considering the having general ideas as the distinguishing feature between man and brutes, and if we ourselves are right in pointing to language as the one palpable distinction between the two, it would seem to follow that language is the outward sign and realization of that inward faculty which is called the faculty of abstraction." The conclusion which Professor Max Müller arrives at as to the origin of language, is that every one of the roots to which it may be reduced "expresses a general, not an individual idea"‡—general ideas being thus in the mind before rational language had its origin.

We have thus three theories of the origin of language from which to choose—the Interjectional, the Onomatopoietic, and the *root,* or general idea, theory of Professor Max Müller. The theory which refers the origin of human language to the possession by man of a knowledge special to himself is certainly the most captivating. It has the defect, however, of assuming what Locke so carefully guarded against—the existence in the human mind of *innate* ideas. Professor Max Müller asserts that,§ "the first step towards the real knowledge [of nature], a step which, however small in

* Locke, Book II. c. ix. s. 10.

† Lectures on Science of Language, 1st Series, p. 363.

‡ Ibid. p. 377. § Ibid. p. 385.

appearance, separates man for ever from all other animals, is the *naming* of a thing, or the making of a thing knowable. All naming is classification, bringing the individual under the general; and whatever we know, whether empirically or scientifically, we know it only by means of our general ideas." Now, it is impossible that there can be even a *particular* idea in the mind before the first operation of the senses, and it is absurd, therefore, to say that before such operation we must have a general idea under which the particular may be classed; seeing that the general can be formed only by comparison of a number of individual ideas or objects and a perception of their common agreement.

Professor Max Müller has been led into this error by supposing that the *roots* he has identified were the original forms taken by language signs. "Analyze,"* he says, "any word you like, and you will find that it expresses a general idea peculiar to the individual to which the name belongs. What is the meaning of moon?—the measurer. What is the meaning of sun?—the begetter. What is the meaning of earth?—the ploughed." Here we have the general ideas pre-existing in the mind embodied in the form of words, as the *naming* of things! If, however, general ideas do not primarily exist in the mind, they cannot have been thus embodied, and yet, how otherwise can the existence of *root* words having a *general* meaning be accounted for? It cannot be explained on the theory of a mere imitation of natural sounds, notwithstanding that the supporters of that theory refuse,

* Lectures on Science of Language, 1st Series, p. 386.

and justly so, to recognize "roots," in the definite form they now exhibit, as the ultimate form of words. For, unless it can be shown how the first language symbols, whatever their origin, came to denote general ideas, the difficulty still remains. One ingenious author has, indeed, endeavoured to show how words expressing general ideas may have had an imitative origin. In answer to Professor Max Müller's question, "how are all things which do not appeal to the sense of hearing—how are the ideas of going, moving, standing, sinking, tasting, thinking, to be expressed by imitation?" he shows that the symbols, at least, of similar ideas have had an analogous origin in the Chinese language. He says,* "The notions of *roughness, rotundity, motion, rest,* were expressed by a mountain, the sky, a river, the earth; the sun, moon, and stars, stood for *smoothness, splendour,* anything artfully wrought or delicately worked; *extension, growth, increase,* were figured by clouds, the firmament, and vegetation; *motion, agility, slowness, idleness,* and *diligence,* by numerous insects, birds, fish, and quadrupeds. In this manner passions and sentiments were traced by the pencil, and ideas not subject to any sense were exhibited to the sight, until by degrees new combinations were invented, new expressions added; the characters dwindled imperceptibly from their primitive shape, and the Chinese language became not only clear and forcible, but rich and elegant in the highest degree." In addition, he endeavours to show that objects which appeal to other senses besides that of hearing may be represented by onomatopoiea.

* 'Chapters on Language,' by the Rev. F. W. Farrar, M.A., p. 193.

According to him,* "when we express by words the impressions of every sense, we are not translating from a number of languages which have no analogy with each other, but we are merely expressing a single subject—namely, ourselves; we are dealing not with external realities, but with subjective sensation. The impressions, however various may be the sources whence they are derived, all act upon a *sensorium commune;* however diverse may be our sensations, they are all of them nothing more than material changes in one common brain. In point of fact, we have not five senses, but only one sense, the sense of feeling. There may be no connection between a sound and a colour, but since both the sound and the colour are but states produced in a thinking subject, the brain which is affected by the sound can *use* sound as a means of expressing the effect of the colour also."

It cannot be denied that there is much truth in these statements as to the extent to which language may be indebted to onomatopoiea for its richness. There is, nevertheless, an evident want of innate life about mere imitative sounds which must ever prevent them from being accepted as the real germs of language. The attempt to show how objects presented to other senses than that of hearing *may* be represented by onomatopoiea reveals this defect. For, although the impressions received through the different senses act upon a *sensorium commune*—as the brain is called—and are but "states produced in a thinking subject," they must, if the objects giving rise to them are to be distin-

* Ibid. p. 207.

guished, necessarily differ from each other. But if so, as it is the "subjective *impressions*" which are intuitively reproduced, and not the "external realities," there is no more reason why a sound should be imitated than that the sensation accompanying the perception of colour should be represented. Sound may, and in fact *must*, be used to express the latter sensation, if any utterance is to be given to the impression produced by it on the mind; but there is no reason why an imitation of a natural sound should be used for that purpose, seeing that, according to the theory under consideration, sound has no more reality to the mind than colour itself, both of them being mere subjective impressions.

In the sensation which precedes outward expression in language we have, however, something to connect the theory of onomatopoiea with the root theory of Professor Max Müller. From what has gone before, it will be seen that the difference between those theories may be traced to the operation which intervenes between the sensation and the speech, or rather to the force which moulds the latter in the form of its utterance, supplied, as it is, according to one view, by *intuitive* imitation; and, according to the other, by general ideas whose activity is also intuitive. Before showing the importance of this point of connection, it is necessary to refer more particularly to the interjectional theory of the origin of language. Perhaps little need be said about it, as the advocates of both the rival theories are agreed in their opinion of the comparative unimportance of interjections in the original formation of language. According to Professor Max Müller, "language begins where

interjections end." Mr. Farrar affirms, indeed, that the interjectional and onomatopoietic theories "are not in reality different, and both of them might, without impropriety, be classed under the latter name," for "the impulsive instinct to reproduce a sound is precisely analogous to that which gives vent to a sensation by an interjection." Interjection and onomatopoiea are, therefore, the same instinctive act of the thinking subject: in the one case the form of expression being governed by the imitative sound; in the other, not by mere caprice, as Mr. Farrar supposes, but by the activity of the mind, governed in its operation by well-defined laws. This is proved by the capacity possessed by interjections for being used as an universal language. Professor Max Müller says* that "one short interjection may be more powerful, more to the point, more eloquent, than a long speech. In fact, interjections, together with gestures, the movements of the muscles of the mouth and the eye, would be quite sufficient for all purposes which language answers with the majority of mankind." Interjections must, however, agree with something innate in all men, or they would not be so universally understood. That such agreement cannot be with general ideas, is evident from the consideration that they do not exist as such in the mind until they have been formed by the activity of the intellect in relation to many particular objects. Onomatopoiea does not supply the deficiency, as it can only look *without*, and we must seek for that which gives interjections their life to the thinking subject *within*. That which is requisite to give vitality to

* Lectures on the Science of Language, 1st series, p. 375.

interjection is, however, equally necessary to, and indeed implied in, each of the rival theories; for they are all founded on the *intuitive* expression of subjective impressions. Without the action of instinct, language would be impossible, as instinct precedes and is essential to all rational thought. When, therefore, it is asserted that the first utterance of language was intuitive, it is simply referring the origin of language to the activity of the very principles of being which reveal themselves in instinctive action itself. It is, indeed, the thinking subject which intuitively reproduces its impressions in the form of language, and that whether it takes the form of the simple emotional utterance of the lower animals, or of the rational speech of man.

Human language does not differ from that of the lower animals in its *origin*, for many of its simplest forms are used as well by animals as by man. We must look for the distinction not in the language itself, but in the faculty of spiritual perception, the exercise of which accompanies man's primitive speech, and which is the same faculty as that which is found at the root of all man's higher intellectual development. All language originally has relation to the *qualities* of objects; for by them only can objects reveal their existence. Man alone has the faculty of recognizing those qualities as distinct objects of thought; and, therefore, his language, which must have equal vitality with the qualities it represents, can alone become rational speech. "Man," says Herder, "shows conscious reflection when his soul acts so freely that it may separate, in the ocean of sensations which rush into it through the senses, one

single wave, arrest it, regard it—being conscious all the time of regarding this one single wave. Man proves his conscious reflection when, out of the dream of images which float past his senses, he can gather himself up and wake for a moment, dwelling intently on one image, fixing it with a bright and tranquil glance, and discovering for himself those signs by which he knows that *this* is *this* image, and no other. Man proves his conscious reflection when he not only perceives, visibly and distinctly, all the features of an object, but is able to separate and recognize one or more of them as its distinguishing features."* It is true that Herder wrote thus in support of the imitative theory of the origin of language, but it expresses admirably the process which the mind *must* pursue to enable rational language to exist at all.

There must, however, be agreement between the elements of man's consciousness and the external world which calls it into activity. Professor Max Müller recognizes this truth when he asserts that we can know an individual only by means of our general ideas; but he forgets that general ideas themselves are merely the final result of thought on the qualities of external objects. When, therefore, language is asserted to be the expression of general ideas, it can mean only that such ideas are symbolized in language, without any reference to the *origin* of the ideas themselves. Rational language is, indeed, simply the symbolical expression of general truths, and its origin and development must go hand in

* See 'Lectures on Science of Language,' by Professor Max Müller, 1st series, p. 365.

hand with the formation of such truths, and be governed by the operation of the very principles of intellectual activity which result in that formation. As, therefore, we perceive individual objects before we can know the general, so must language originally express particular, and not general, ideas. As those ideas, however, have relation to the qualities of objects, each of them must necessarily be the expression of a generalization. When Professor Max Müller asserts* that all nouns "express originally one out of the many attributes of a thing, and that attribute, whether it be a quality or an action, is necessarily a general idea," he recognizes the truth of this view. His error shows itself when he asserts† "that the first thing really *known* is the general." True, as he affirms, it is through the general "we know and name afterwards individual objects of which any general idea can be predicated;" but until that has been done we cannot *know* the general which comprises those objects. In the first formation of language, the thinking subject performs such an act of reasoning as we have before supposed to accompany instinct, in which the subject, as itself the general term of the syllogism, is intuitively applied to the object the presentation of which arouses its activity. The origin of language is simply this.—On the presentation to the mind of an object of the external world, the impression produced is intuitively reproduced. As an object can be perceived only through its qualities, it must be the quality, and not the object, which is represented; and, if it be a sound, the representation will necessarily be by imitation. The idea formed in

* Lectures on Science of Language, 1st series, p. 383. † Ibid. p. 384.

the mind is first of the individual; but, as qualities contain in themselves, from their very nature, the possibility of generalizations, the language sign—which represents the individual—may, and generally soon does, lose its particular character and become the symbol of a general idea. The possibility of this arises from the agreement between the qualities of objects and those first principles, or intuitions of truth, which exist in the thinking subject itself. If, therefore, Professor Max Müller, instead of saying that the first known is the general, had said that the first known is the individual —instinctively named by the application of the general intuitions of truth active in the mind—he would have been right. It is in the second, instead of the third, stage "that these individual objects thus known and named, become the representatives of whole classes, and their names or proper names are raised into appellatives."

If, then, it is necessary to choose between the rival theories of the origin of language, the despised theory of interjection appears to be, after all, the nearest to the truth. Interjection is, in the words of Mr. Farrar, the "instinctive expression of the subjective impressions derived from external nature" — a definition which agrees exactly with the explanation of the origin of language here enforced, if in the use of the word *instinctive* it be understood that the intuitions of truth in the mind are the active agents in the form given to the expression.

CHAPTER V.

REFLECTION AND CONSCIENCE.

WHEN language symbols are once formed, whatever may have been their origin, they quickly take the place of the ideas or mental images they represent as objects of thought, and by their greater simplicity, and probably also by their peculiar readiness for association, much conduce to the increase of mental activity. The great value, however, of language signs is in the power they give of thinking and reasoning about things of which the mind could otherwise form no idea, apart from present sensation. By representing each object of thought by a language symbol, it becomes possible to call up in the mind an idea which, in the absence of any representation of the object itself, will be accompanied by an instinctive perception or feeling of its nature, and any object can thus be reasoned about as certainly as though it were actually present to the mind. This is particularly observable of symbols expressive of general ideas,

which must necessarily, from the nature of such ideas, convey to the mind the notion of something which cannot really exist. Yet the mind associates with each of those symbols a truth which is infinitely more valuable than any particular idea contained in it, notwithstanding that the latter represents an object which has actual or potential existence.

The nature of language symbols, as being, primarily, merely aids to mental activity, and not originators of it, is a sufficient answer to those who look to the faculty of speech as the ultimate source of man's superiority. It is true that, without language signs, the mind could not form a definite conception of a general idea; although it is by no means certain that some indistinct notion of such an idea could not be entertained without them. Nor can it be denied that the want of such signs must ever present an insuperable obstacle to great mental development; and to this want the inferiority of the lower animals may, therefore, as a *secondary* cause, be ascribed. The possession by man of rational language is, however, dependent on his capacity for distinguishing between objects and their qualities, and we must, therefore, refer the non-possession by the lower animals of such language to their non-perception of qualities as distinct objects of thought. It is by the exercise of his superior perceptive faculty man has primarily been able to attain to his present fulness of mental development, and it is to that faculty we must look as the source of his vast superiority over the brute creation.

To rest satisfied, however, with this conclusion would be as unsatisfactory as to refer man's superiority simply

to the possession of the faculty of speech. As language depends for its existence on the activity of some principle of being of which it is the utterance, so the perception of the qualities of objects must depend on some such principle of which it is an attribute. We ascribe the perception of the individual objects which are presented to the eye to the *psyche,* or animal soul, or whatever else that in which animal being consists may be called, and we must refer the perception of the *qualities* of objects to the same or some other principle of being. On the conclusion we come to as to the nature of the latter principle, will depend the view we take of the relation between man and the lower animals.

Before considering this further question, however, several mental phenomena not yet noticed claim our attention. We have hitherto noted man's superior perceptive power with reference to external objects alone, but it is equally remarkable in other relations. The faculty of internal perception, although its exercise results in self-consciousness in the mind of man only, cannot be denied to the lower animals. Limited as this faculty may be in its objective range, it is no less essential to the rational phase of animal thought than the perception of external nature, seeing that the objects of mental activity are, not the external things which give rise to sensation, but the images which are impressed on the mind as the result of sensation. It is true that the lower animals have no actual knowledge of mental phenomena—their internal perception being simply intuitive, without any notion of the actual existence of the mental images, in like manner as the perception of external objects is

intuitive and instinctively acted on, without any thought of their actual existence. On the other hand, man's reception of mental phenomena is not simply instinctive. He has the capacity of fixing his attention on them, and of subjecting them to the same process of analysis as that which he applies to external objects, and with a result in both cases equally marvellous. Not only the purely mental operations, but also the emotions which are so strictly subjective that the lower animals can have no notion of them beyond the most indefinite impression, have been thus analyzed, and we see the result of the process in the generalizations of the moral, metaphysical, and abstract sciences. The so-called axioms, or self-evident truths of science, which are the highest, because the most simple, generalizations, are the fruit of internal perception, which may be said in their case to have penetrated to the very intuitions or first principles of truth in the mind. Not that the mind contains within itself any "ideas" which require only to be sought for to be discovered, but only a natural tendency to recognize *truth* when presented to it under proper conditions. It is thus we must explain the origin of all those so-called intuitive truths, which the educated mind so instinctively recognizes, that at first sight it appears as though it must always have held them. In reality, however, these truths had no existence in the mind before they were formed by generalization from an almost infinite number of particular ideas which had preceded them. Such must have been the origin of the so-called intuitive idea of the existence of God, and of those notions of right

and wrong which show their activity in conscience. The universal existence of conscience in the human mind, is an important metaphysical fact; and as conscience is often treated of as though it were a separate mental faculty, and its possession declared to be the true mark of distinction between man and the lower animals, it is advisable to explain its origin more particularly.

That there is not inherent in the mind of man any such knowledge of the distinction between right and wrong as that which is usually understood when the existence of conscience is affirmed, is evident from the different notions on the same moral questions formed by the various races of mankind. Conscience, according to the usual meaning of the term, is simply the intuitive perception of the true quality of actions as right or wrong, and the problem presented in it is to explain the contradictory opinions as to that quality entertained by different men, consistently with the existence of an absolute standard of truth in the mind. There is but one way of accounting for the curious contradictions of conscience, and that is by supposing it to have an origin similar to that of the apparently intuitive judgments of physical science. It was before asserted that each of the several phases of mental activity may be resolved into a simple judgment of relation, and all "science" is strictly the formative result of a series of such judgments. In the activity of conscience there is equally the formation of a judgment of relation. When a man does, or refrains from doing, an action which he thinks is right or wrong,

he is guided in his conduct by the application of certain rules or principles implanted in his mind, either naturally or by the influence of external circumstances. When the moral judgment becomes so active in its operation as to be instinctive, it is called *conscience*. As, however, there may be false science, through the application of wrong principles to the explanation of natural phenomena, so may a false conscience be formed through the application of wrong moral principles to the explanation of the phenomena of social life. The fundamental error of the popular notion of conscience is in limiting its operation to moral questions alone. It is true that what is popularly called "conscience" has relation only to such questions, but the mental operation which takes place in it is strictly that which shows its activity in relation to the questions of physical science. Conscience may be defined as an instinct of truth—positive or negative—and this instinct operates, as well when scientific, as when moral phenonema are presented to the mind. In the one phase it is moral conscience, in the other scientific conscience, and it differs in either case only in the nature of the objects towards which it is directed. In the history of modern civilization, we see the development of the moral conscience go hand in hand with that of the scientific, the principle which operates alike in both having obtained so perfect an influence in the educated mind, that the presentation of the ordinary phenomena of nature or of the social life, is accompanied by an instinctive judgment of truth or falsity—of right or wrong. Nor is the

influence of the moral conscience more universal than that of the scientific. The phenomena to which they severally have relation are ever occurring in the every-day life of man. That the former is more liable to err in its judgment than the latter is accounted for by the fact that, while the observation of physical phenomena has reference to the attainment of a certain end which can be gained only through a knowledge of the laws of physical nature, moral phenomena are not necessarily governed by law, but may change their character by the caprice of man or the more powerful influence of custom.

Conscience is, then, simply the instinctive application to the actions of social life of certain moral ideas formed in the mind, and it, therefore, depends on experience and education for its peculiar phase of activity; in like manner as the nature of the scientific judgment depends on the scientific principles which have become active in the mind through the influence of education or habit. It cannot be doubted that both the moral and scientific consciences go through the same processes in their development. The activity of both increases as the objects of thought—that is, as the perceptions of the results of the particular actions to which they severally have relation—are multiplied. These results are first observed simply as they affect the physical organism of the sensible agent. It is only when the phenomena themselves are lost sight of in the recognition of the laws which govern them that the activity of conscience is perfected, and then the moral and scientific judgments alike become intuitive in their quickness and accuracy of appli-

cation. As the result of the development of the true moral conscience a change takes place in the object of external action which may well be declared to be the highest triumph of the reflective faculty. Animal life-activity, depending on physical sensations, and being directed in its every aim to the satisfaction of the wants of the physical organism, is essentially selfish. Human action, on the other hand, although in its first efforts no less selfish, yet is so only whilst the mind is imperfectly developed. The child and the lowest savage are both intensely selfish, but even they often show signs of a higher phase of feeling. With the development of the human mind, however, we see a gradual weakening of the influence of self-love, leading ultimately to that total abnegation of self which distinguishes the noblest minds —those in which action, being guided simply by the influence of the principles of truth, has the triumph of truth or the good of humanity for its single aim.

CHAPTER VI.

UNDERSTANDING, FEELING, AND WILL—THE PSYCHE.

A SURVEY has now been taken of the phenomena of the mental activity of man and of the lower animals; but it still remains to make known the source of that higher perceptive faculty on which man's superior mental development depends. The plan already adopted can alone be used with advantage for that purpose. Unless we can first determine the principle of being which shows its activity in the mental life of the lower animals, it will be impossible to ascertain whether man is indebted to the same, or to some other principle, for the peculiar results of his mental activity. Of the lower animals, then, it may be observed, that they possess all those modes of activity, which are usually termed the faculties of the soul—namely, feeling, understanding, and will. By *understanding*, or intellect as it is now usually termed, it is intended to denote that phase of the soul's being in which the mental powers are supposed to reveal their

activity. When, therefore, it was shown that animal action is governed by instinct, thought, and reason, sufficient proof was given of the possession by the lower animals of the understanding or intellect. It cannot be denied to even the lowest of the animated creatures. Instinct, thought, and reason, being merely different phases of one and the same mental activity—superior the one to the other only in objectivity—the purest instinctive action is evidence of the presence of the understanding. Nor can it be denied that all the lower animals have that faculty of the soul which is called *feeling*, or emotion. This may appear doubtful to those who have not a clear idea of the full signification of those words. Some writers restrict *feeling* to the simple sensibility of the physical organism, forgetting that there can be no operation of that sensibility without a corresponding affection of the sentient principle. By others, *emotion* is used in reference merely to the activity of the *psyche*, or soul-essence, as though the soul could be affected quite independently of its material covering. It cannot be doubted, however, that emotion and feeling denote the same thing—an affection of the soul essence—whether it have its origin in the action of the physical organism, in which case it is more properly called *feeling*, or whether it originates in the soul itself, revealing its activity through that organism, when it is termed more properly *emotion*.

The lowest phase of feeling is that which is denominated, according to its effect, pleasure or pain. That pleasure and pain are, in their primary phases, really the same state of the sentient principle—their difference

having relation only to the condition of the physical organism—is evident from their dependence on the development of the nervous structure for their existence. Pleasure and pain show themselves in the lowest forms of animal life—those which have merely a general sensibility—in the indefinite sensation which accompanies the feeling of a physical want and its satisfaction; unless it be said that, in such cases, the activity is so continuous that there is no change of feeling sufficient to constitute a distinction between pleasant and painful sensation. It is only when a nervous system has been developed that we find sensation accompanied by a definite feeling of pleasure or pain, and these opposite phases of it increase in intensity as the nervous system becomes more complex in its structure. Feeling, in this its simple phase, having its source in the physical organism, and—although it is necessarily in some measure subjective—having relation chiefly to that organism, may be termed, for the sake of distinction, *objective*. When, however, the feeling has its origin, not in the bodily organism, but in something presented to the organs of sense, and, therefore, external to the body, it may be said to be purely *subjective*, and it is in this phase that it is more properly called *emotion*. Emotion, being thus dependent on the special-sense organs, can only show itself where they are developed, and its simplest phase must be sought in those creatures which have the lowest of such organs—the eye. In them it reveals itself as a scarcely defined *fear*, which leads its subjects to endeavour to escape from apparent danger, and—if the anecdotes sometimes related of insect tameness be true

—in a kind of attachment which partakes of the nature of *love*. In correlation with the complexity or perfection of the special nervous developments, simple fear and attachment expand into the more definite emotions of fear and love, which the higher animals are undoubtedly capable of being affected by.

The difference between the objective origin of the feeling of pleasure or pain, on the one hand, and of the emotion of fear or love, on the other, proves that the latter cannot properly be reduced to the former as their ultimate phase. All emotion is certainly accompanied by pleasure or pain, but we say that love *gives* pleasure and that fear *is* painful, and not that love and fear are merely pleasure and pain in other relations. There is, however, evidently an intimate connection between these several feelings and emotions, and the explanation is to be found in the fact that they may be reduced, not the one to the other, but all to one activity, which differs in its phases according to the objects to which it is indebted for its origin. If this be true, all feeling and emotion is in reality subjective, and the dependence of pleasure and pain on the physical organism is simply a proof that the subjective feeling is dependent for *one class* of its phases on that organism as its objective source. The error in referring pleasure and pain only to the body, would appear to arise from treating the body and the soul, or sentient principle, as quite independent of each other, whereas they must be considered as one, making up together the complete being—the only portion of this whole which may be treated as distinct, being the gross material substance which composes that which is called

the "body." While it is the *animal* which "feels," it is dependent on external objects for the origin of its feeling or emotion, and one of such objects is the outer material covering, whose affections give rise to the phases of feeling called pleasure and pain. Some confirmation of this view is found in the fact that physical pleasure or pain can be controlled by the mind. It will hardly be denied that the North American Indian can feel pain as acutely as the European, yet he has so powerful a command over his feelings that he can bear unflinchingly what would cause the utmost agony to a man of weaker mind. The power of concentrating the attention on some other object, and the strength of the will on which that power depends, furnish some explanation of the fortitude with which religious martyrs have borne the apparently most excruciating sufferings. The influence of the mind over sensation, and, therefore, over the physical sensibility on which sensation depends, is best observed, however, in what is called *absence of mind*, which is merely a phase of the concentrative power on another object of thought which often shows itself in cases of indifference to suffering, and which can be explained only on the supposition that it is the soul, or sentient principle, which is really affected in pain, the body being merely the medium or external instrument by which the affection is originated.

We see a strict analogy between the mode of development of the emotional nature, and of that of the intellectual faculty. Both are dependent on the presentation of certain objects of thought for their activity, and the highest phase of each shows itself when those objects are

the most numerous. To the greater multiplicity of objects for the exercise of the faculty of "feeling," rather than to any difference in the faculty itself, are due man's nobler passions and emotions. Reduced to their simplest form, all the most complex passions and emotions of which man is capable are merely phases of the simple emotions of love and fear, varying only in the objects to which they have reference, and the peculiar conditions under which they are called into activity. There is, however, another source for the superior activity of the emotional nature in man beyond the mere increase of objectivity. As the human soul, or *psyche*, takes cognizance of qualities as distinct objects of thought for its intellectual faculty, so it can analyse those things which have acted on its emotional nature, and subtract from them those qualities which give them their peculiar influence. Thus it is that the pleasure or pain which an action may cause is not that by which its value is ultimately measured, and that actions come to be performed for their own sake, rather than for the results with which they may be accompanied. This change of objectivity in relation to the emotional nature, or, in other words, in the motives for the actions of the social life, is the result of the activity of the same principle as that which operates to give superiority to human intellectual development. It is by the agency of the faculty of reflection that the soul, or *psyche*, takes cognizance of the qualities of actions as of objects, and it is as the result of the perceptions of those qualities that the ideas of moral science are generalized in the soul, in like manner as the general ideas of scientific truth are formed in the mind.

The activity of this faculty is further seen, not only in the enjoyment man derives from the perception of a beautiful landscape, but also in the formation of those principles of taste or beauty which are embodied in the creations of the painter, the sculptor, and the architect, and in the kindred arts of poetry and music. It is not merely the presentation to the eye of a landscape which gives pleasure or pain, for, if so, the lower animals ought to be thus affected equally with man. The emotion is the result of the perception of the relation which the different objects composing the picture bear to each other, and as the intensity of feeling of bodily pleasure or pain depends, apart from the attention paid to it, on the sensitiveness of the physical organism, so the pleasure or pain derivable from the perception of a landscape will depend on the keenness of the perception. In the latter case, however, it is combined with a right judgment as to the application of the principles which operate in *taste*, which are themselves gradually formed in the mind as an *æsthetic conscience*. In the enjoyment derived from an inspection of a beautiful picture or statue, the same mental process is gone through. In this case, however, there is a greater admixture of intellectual activity, while in the highest creations of the poet and the musician, the intellect not only more fully embodies itself, but its exercise is yet more essential to the full activity of the emotional nature.

The analogies of operation of, and the intimate union between, the emotional and mental faculties are so striking, that it is doubtful whether they are in fact different faculties of the *psyche*, or soul principle, and

whether they are not, in reality, the same activity of that principle showing itself in different relations. We may, perhaps, have still more reason to come to the latter conclusion if we consider the nature of the *will*— the so-called third faculty of the soul, or *psyche*. Whether the will itself is a distinct faculty may be considered uncertain; but it may be affirmed that we can have no notion of animal will apart from bodily action. The animal will has relation simply to external nature, and it has for its object the supply of the wants of the physical organism. This will may, therefore, be said to consist in, as it is inseparable from, external action. It is in the diversity of action we see the result of the co-operation of the will with the increasing activity of intelligence, and not in any change in the mere act of will. Nor is there any such change in connection with the operations of the superior intelligence of man — the difference between animal and human will not being in the faculty itself, but in the mental activity with which it is accompanied, and in the greater variety of the objects towards the attainment of which it is directed. This identity of will with action makes it probable that the former is no more a distinct faculty of the soul, or *psyche*, than is either the emotional or the thinking faculty itself. All external action is due to mental activity, and must have its source in the emotional nature showing itself as inclination or desire. If, therefore, *will* be, in reality, synonymous with action, it is nothing more than the external expression of that which thus reveals itself, and it may be defined as the expression in action of the mental and emotional natures.

If we analyse the mental process which accompanies external action we shall see more clearly the relation between feeling, understanding, and will. All external action is preceded by a sensation, which is pleasant or painful according to the feeling or emotion it arouses. This feeling or emotion itself leads to a mental operation, or effort of the understanding, which shows itself in external activity as an expression of the will. The action which thus finally results depends for its character on the nature of the "feeling" first aroused, and on that means of satisfying the resulting inclination or desire which the mental activity may declare to be the best. In this process there is the concurrence of the feeling, understanding, and will—the three so-called faculties of the soul—and it is evident that they are really the activities of but one principle—that which feels, thinks, and wills. The intimate connection between the development of the emotional nature and intelligence, would, however, lead us to think that feeling and thought, and, therefore, that these mental activities and will, may be not distinct faculties, but, in reality, merely one and the same activity, revealing itself in relation to different objects. The feeling which is aroused by external action on the physical organism is, not an independent and definite phase of activity, but a simple state or affection. Nor is the will as shown in action anything more than the outward expression of the mental activity which has preceded it. That mental operation to which "feeling" leads and which shows itself in the will, may be described, therefore, as the only real activity. Thought, like feeling or emotion, is, however, itself simply

an affection or state of the thinking principle, while will is nothing more than the expression of such an affection, and the true difference between feeling, thought, and will, must, therefore, be sought rather in their objectivity than in their mode of action. Feeling or emotion is, in reality, the simple state or affection of the thinking principle in relation to itself; thought being that emotion or affection drawn out and exercised about external objects; whilst the will is the external expression of the feeling or emotion in relation to those objects.

The identity of feeling, thought, and will, or rather their connection as different phases of the same mental activity, is the most evident in the life of those creatures which have no organs of special sense, but merely a general nervous sensibility which answers to the pure instinct by which all their actions are governed. With these creatures, feeling, or the activity of the emotional nature in response to the operation of the sensitive organism, is followed immediately and instinctively by external action, which, although simple, is perfect in its fitness for the purpose required, and which must, therefore, be the result of some mental activity. As all action is necessarily preceded by a judgment of relation between the object in view and the means of attaining it, such a judgment must be formed in instinct, although, of course, it is not accompanied by any apparent process of thought. The absence of any actual thought activity, notwithstanding the affection of the thinking principle, shows that instinctive action should be described rather as the effect of a *feeling* or emotion of propriety, than as the result of an act of judgment. Emotion and judg-

ment are, indeed, in instinct equivalent terms, the judgment being the necessary result of the activity of the emotional nature, or rather the expression of that activity in relation either to self or to external objects.

But what gives the emotional nature the certainty of its judgments, and what is the principle of being to which the emotion must be referred as its state or affection? Such a judgment of propriety as we see resulting in external activity can be found only by comparison of the action with some rule or standard already in the mind, and, as in pure instinct no such rule or standard can exist as the result of the experience of the animal organism, it must be sought for in the instinctive principle itself. Instinct and intuition, or intuitive perception, may be considered synonymous terms. When the human mind acts instinctively, its activity is referred to the intuitions, or first principles of truth, which guide the mind in its various operations. That the mind does operate in pursuance of certain laws, is evident from the similarity of mental phenomena, not only in the same but in different thinking subjects, and that such laws must be referred to certain first principles innate in the mind itself, is proved by the existence of the so-called intuitive truths which, although not originally implanted in the mind, are yet instinctively recognised when presented to it, because they agree with those innate principles. All reasoning is ultimately founded on intuitive belief, and we see the most simple operation of such belief in pure instinct, which we must, therefore, refer to the so-called intuitions of the mind, of whose activity it is the most perfect expression.

But what are these intuitions? It is evident that they cannot exist of themselves, and they must, therefore, be referred to some principle of being in which, as they precede all experience, they may be declared to be innate. As the laws of motion govern the various forces of the material essence, in their modes of action, so the intuitions furnish the laws which govern the modes of activity of a spiritual substance, which can be none other than the soul essence, or *psyche*—that principle of being whose activity is seen in feeling, understanding, and will, as different phases of its affection. Not only do the intuitions act as guides to, or as rules for, the soul's operations, but, in analogy to the qualities of material bodies, the soul may be said to exist in and by them, for they are the very principles of its being, which, if it were possible to abstract, the soul itself could be annihilated. It is to the possession, then, of the soul essence, or *psyche*, we must refer the phenomena of animal life. Brought into contact with external nature through the medium of the simplest form of nervous development, the soul shows its activity or affection, guided by its intuitions, in the perfect operation of instinct. When the avenues of communication with nature are more perfectly developed, and the perceptions of external objects, therefore, multiplied, the soul's affection shows itself in simple thought activity, resulting in imitative action. The development of the organs of special sense being perfected, and the objects of thought thus increased, the soul's affection has its greatest activity, resulting in that rational action which is seen, as its highest phase, in the life of man.

CHAPTER VII.

THE PNEUMA, OR SPIRIT OF REFLECTION.

HAVING thus examined and compared the psychological phenomena of man and of the lower animals, and referred the mental activity of the latter to the soul essence, or *psyche*, it remains only to show the source of that higher perceptive faculty to the exercise of which man's mental superiority is due. The possession by man of the principle of being which is called the "soul," is evidenced by the comparison already made between the mental phenomena of man and those of the animal life. The whole superstructure of human civilization is founded on those intuitions in the activity of which the soul's life seems to consist. The question to be considered, then, is whether man's superior mental development can be sufficiently accounted for, either by a greater natural activity of the soul essence, or by the possession of a superior physical organization, through the medium of which the soul can more perfectly operate. In con-

sidering this question, it must be remembered that the higher animals possess a development of the special organs by which communication is held with external nature as complete as that of man himself, and that the operation of those organs (with the exception of that of touch) is not less perfect with the one than with the other. That man's superiority has not its source in the physical organism, is evident, moreover, from the fact that it shows itself primarily in the clearer or more distinct perception of those things which are presented to the eyes of all animals alike, but which man alone can appropriate as distinct objects of thought. That it cannot be the result simply of a greater activity of the soul essence, or *psyche*, is apparent when we consider that, while the perceptive faculty on which the mental superiority of man depends is essentially distinct from the objective perception possessed by the lower animals, it is accompanied by the exercise of the very same mental powers as they possess, resulting, however, in a complete change of thought objectivity, as though a fresh world were disclosed to the soul's gaze. A strict analogy may, indeed, be drawn between this higher perception and that which is dependent on the bodily organ of sight for its materials. All animal knowledge is the final result of sensation leading to a perception of external objects, the eye—that special sense organ through which the lower animals can alone gain a knowledge of the existence of such objects—being the first in its development, and the most general in its possession. Man has also this objective perception, but, combined with it is that of the qualities of objects, which was before shown to have inti-

mate relation to the subjective sense organs. For objective perception the eye is the chief, if not the only instrument, whilst for subjective perception the great medium is the hand. The latter faculty might, notwithstanding its use of an external instrument, be referred to an internal visual sense—a spiritual eye—resulting, as it does, in a kind of "insight" into the nature of objects. For not only does it give a knowledge of the qualities by which the objects of nature may be said to exist, but it gives a perception of those internal qualities or attributes which are active as the intuitions of the mind. We see the perfect development of the spiritual vision in the instinctive judgment, or perception of truth, which shows itself in genius on the one hand, and in conscience on the other, and it has for its final phenomenon the knowledge of self as existing independent of all external objects. If this analogy between the bodily organ of sight and the spiritual eye be just, it points to an important relation. For, as the external sense is the result of a special nervous development of the physical organism, so the internal sense is doubtless connected with some principle of spiritual being of which it is the special faculty or attribute.

In coming to a determination as to the nature of that principle of being which shows its activity in the faculty of spiritual perception, it may be of service to inquire shortly whether there is any such essential difference between the phenomena of the vegetable and of the animal kingdoms, as to compel us to ascribe them to the influence of distinct vital principles. It cannot be denied that there are certain ap-

proaches of these two divisions of nature in the external forms taken by some of their individual members. As the highest of the brute creatures closely resembles man in physical structure, so *some* of the vegetable formations, although not the highest, have a certain structural resemblance to creatures included in the animal kingdom. Not only, however, is there an analogy of *form* traceable throughout the animal and vegetable kingdoms, but there is a complete analogy of bodily *function.* All the operations of the organic functions both of animal and vegetable bodies have for their aim either the nourishment of the individual or the reproduction of the species. The striking peculiarity is observable, however, that, whilst the vegetable "receives its nourishment solely from the inorganic kingdom, the animal receives its food in that form of portions of organisms, which, after undergoing certain chemical changes in the animal laboratory, become a composite fluid answering the purpose of the sap in plants." This fact would lead us to suppose that there may be some essential difference between the animal and the vegetable organic life. The phenomenon which most clearly establishes this superiority of the animal organic life, however, is the *voluntary* activity which accompanies its functional operations. M. Adrien de Jussieu defines *vegetables* as "bodies which can support and reproduce themselves, but which can neither feel nor change their position from any will of theirs;" * whilst *animals* are "bodies which support and reproduce themselves, which feel and move voluntarily." In other words, sensibility, and consequent motion, are the dis-

* Jussieu's 'Elements of Botany;' Bohn, p. 10.

tinctive marks of animal life. In the lowest animated forms, we see the operation of sensibility resulting in the instinctive activity which has for its aim the obtaining of food for the nutrition of the bodily organism. In no vegetable organism is there the slightest trace of true sensibility, all those actions which have at different times been ascribed to it being clearly referable to mechanical causes or dependent on external influences.

Nor are there less distinctive marks of difference between the life of man in its totality, and that of the animated creatures which are immediately below him in the scale of being. As the functions of the vegetable organism are the same as those of the animal body, so the functions or faculties of the animal soul-essence are the same as those of the like essence in man. But as the superiority of the animal over the vegetable is seen in its *perception of* external nature, so the superiority of man over the lower animals is seen in his *reflection about* that nature. As the animal, having no idea of the qualities in the activity of which objects reveal their existence as distinct from the objects themselves, may be said simply to *see* nature, so man, having a perception of those qualities, may be said to see *into*, and thus to have an actual *knowledge of* nature. This difference of result we can only ascribe to the operation of principles of being, as distinct from each other as those which show their activity in the phenomena, on the one hand of animal sensibility, and on the other of the vegetable life.

The principle of being on which man's superior mental development depends is the spirit of reflection, or simply—

as distinguished from the soul essence, or *psyche*—the spirit, or *pneuma*. It is by the activity of such an additional spiritual agent we can alone account for the superior phenomena of the human mental life. Founded, as those phenomena are, in the simple sensational perception which the lower animals also possess, we see in them the gradual development of a perception so different in its objects as to be necessarily due to the activity of a superior principle of being. The final result of this perception is the knowledge of the intuitions of truth, which are the very life of the soul essence, a knowledge which requires the operation of a spiritual principle existing beyond the soul, although intimately connected with it. Having no such external principle of spiritual activity, the lower animals can never obtain any knowledge of the soul's intuitions, or of those general truths which are the expression of them in relation to external nature. It is thus that the brute creatures are the mere instruments of the soul's activity operating through the bodily organism, whilst man, having discovered the intuitions which are thus active, realizes them, and makes them instruments for his advancement in knowledge, and for the subjection of the forces of nature to his own purposes.

The relation between the soul and spiritual essences, or between the *psyche* and *pneuma*, is clearly seen from the nature of the spiritual activity which leads, not to any change of mental operation, but merely to the improvement of thought *objectivity*. The soul can of itself perceive only the individual objects presented to the eye, but when joined to the spirit it takes cognizance, not

only of the ever-varying phenomena of nature, but also of the qualities of objects on which the changes in such phenomena depend, and even creates those symbols which, as objects of thought, give it so increased a range and activity. The spirit, having to do only with the object, and not with the thought itself, may be classed with the bodily eye, as an instrument of soul vision—the one giving perception of the material forms of nature, the other of its spiritual forces, and in this relation, although having a much enlarged objectivity, it may be identified with that faculty of reflection, which, according to Locke, is a chief source of our ideas. As, however, the soul-essence, or *psyche*, is indebted to its union with the spirit, or *pneuma*, for all its actual *knowledge*, both of external nature and of its own being, the spirit is entitled to claim a higher nature than that of the soul essence to which it is joined, and it must be recognized as the true principle of *spiritual life*, although not the actual source of *being*.

That the spiritual life, like the soul activity, has its several phases or stages of development, is evident from the phenomena observable in the mental life of the child, of the woman, and of the man. The child, in its ceaseless inquiries, shows the first unfolding of the spiritual perception, but that perception being as yet imperfect in its operation, the child is limited in its activity to the imitation which is the result of simple thought. In the woman we see the activity of the spiritual principle, in combination with that of the soul essence, in an intuitive recognition of modes of action, without the actual perception of the qualities on which their value depends,

which is necessary to the generalizations of reason. We see here the activity of the instinctive soul vivified by contact with the spiritual principle, resulting in that almost intuitive perception of simple relation, the possession of which by woman is her peculiar distinction. In man, on the other hand, instinct giving place to reason as the stimulating principle of action, the spiritual perception is employed in supplying objects of thought for the activity of the mind, the final result being the pure reasoning which is the peculiar attribute of man. In *genius* we have the crowning glory of man's mental development—the intuitive operation of the emotional soul essence, being so perfectly combined with the keen perception of the reflective spirit, that reason itself becomes intuitive, and the mind operates by a process of spiritual instinct.

RÉSUMÉ.

Before examining the objections which may be urged against the principles laid down in the preceding pages, a short *résumé* of the argument may be of service in estimating its value. *First*—The faculties of the soul essence, or *psyche*, are reducible to a simple activity, differing in its several phases merely according to the objects towards which it is directed, such activity in relation to self being called *feeling* or emotion,—in relation to the

perception of external objects, *thought* or the operation of the *understanding*,—and in its action *on* those objects, *will*. *Secondly*—The several phases of the soul's activity, in relation to external nature, differ according to the multiplicity of its objects, and have a direct relation to the special nervous developments of the physical organism with which the soul essence is associated. Thus, *pure instinct* is the activity of the soul through the agency of an organism which possesses no special nervous development, but merely the general sensibility which is requisite for receiving impressions from external objects. *Mixed instinct* is the result of the activity of the soul essence associated with an organism possessing only the eye or objective sense, the simplest of all the organs of special sense. In simple or imitative *thought* we have the operation of that essence on the sensations received through the objective sense organ, combined with those of the subjective senses, the latter of which are, however, as yet either imperfectly developed or imperfect in their operation. When all the organs of special sense are fully developed and perfect in their operation, the soul's activity about the various objects of thought presented to it, shows itself as *reasoning*. The difference between the several mental faculties is thus seen to have no subjective reality, but is simply objective, and the distinction between them is lost in *habit*, in which those objects of thought cease to be observed, and rational action again becomes instinctive. It is in the possession of the soul essence, or *psyche*, which shows its presence in the several phases of mental activity, we recognise the psychical unity which exists throughout the whole animal kingdom. But,

thirdly, as the progression from instinctive to rational action is due to an increase in the number of thought objects, so the change from simple reasoning to the higher reason which distinguishes man, is due to a change in the *nature* of those objects. The latter change is the result of the exercise of the faculty of spiritual perception, which gives a knowledge of qualities as distinct from the objects in which they inhere, this perception being the source of all man's civilization. The principle to which the faculty of higher perception belongs, is the *spirit*, or *pneuma*, the activity of which gives a knowledge of the intuitions, or first principles of the soul's activity. The spirit, or *pneuma*, has an operation analogous to that of the bodily eye, and may therefore be termed the soul's spiritual eye, or the faculty of *reflection*, but, as being the instrument of man's highest knowledge, it is the true principle of spiritual life.

PART II.

CHAPTER I.

MORAL RESPONSIBILITY AND IMMORTALITY.

HAVING arrived at this point, it may be proper to explain somewhat more fully what is meant by the terms soul, or *psyche,* and spirit, or *pneuma.* This is the more desirable as the ascribing of the soul essence to the mere animal creation may arouse religious prejudices, and furnish an apparently serious objection to the principles before laid down. "Allow the soul to animals," it is said, "and you at once make them responsible, immortal creatures." Now, this idea has its origin in a totally erroneous view of man's spiritual nature; and that, again, in a metaphysical proposition, which has taken its place as an almost axiomatic truth, and yet which is not only incapable of proof, but has nothing to recommend it to the mind as intuitively true. This false metaphysical notion is simply that of the *oneness* of

spiritual essence. It cannot be doubted that this error has been the source of all the false theorizing as to the origin of man by a process of development out of a lower animal organism, which has taken so strong a hold on many scientific minds, and, if the notion be true, it can hardly be denied that the development theory gives the most impartial, the only rational explanation of man's origin. Sufficient has been said in the preceeding pages to prove that the lower animals have the same mental or soul faculties as man, and on the usually received hypothesis, it must be affirmed either that such faculties are simply the result of physical organization, and, therefore, that the human and animal souls have a like material origin; or that, as those faculties prove the possession by man of a responsible and immortal spiritual principle, the lower animals must also be responsible and immortal. These are the legitimate conclusions, to one of which the unimpeachable phenomena of animal life must lead us, if the essential oneness of spiritual essence, as distinguished from the material essence, be a scientific truth.

The duality of spirit, or rather the ascribing of the soul essence to the lower animals, is so little in accordance with popular prejudice that the usually received opinions as to the source of animal mental activity are worthy of more particular notice. The popular opinion as to animal nature, seems to be that it is something quite different from that of man,—in the words of Lord Brougham,* that there are "two kinds of intelligence, human and brutal, and two sets of faculties, a memory

* Dialogues on Instinct, p. 159.

and a quasi-memory, as the lawyers would call it, an abstraction and reasoning, but, though like, yet not the same." But, to quote from the same author,* "to argue from the complex effect of all the faculties, bodily and mental, in giving different progress or power to our race and to theirs, and to infer from this difference that there is an essential and specific diversity in our mental structure—nay, that they have not one single faculty the same with ours in kind, is highly unphilosophical. It is, indeed, contrary to one of the fundamental rules of philosophizing, that which forbids us needlessly to multiply causes." Nothing more need be said with reference to this theory of animal nature, which no one at all conversant with the principles of mental philosophy can entertain.

Another theory, which is nearer the truth than the preceding, although on account of its materialistic tendency more dangerous in its error, may be gathered from the following quotation: †—"Intelligence, so far as it relates to natural well-being, is not a distinct faculty; it is referable to the instinctive life, equally in brutes and mankind. It is quite a mistake to suppose that instinct has nothing of intelligence connected with it—that it is uniformly and necessarily blind. Often it may be so, and in brutes perhaps it is the rule, but there are no tribes of creatures in which intelligence is not largely and most evidently exhibited, over and above their unconscious skill." It is difficult to see how instinct can be *intelligent*, in the sense in which that word

* Dialogues on Instinct, p. 158.

† Life, etc., by Leo H. Grindon, 2nd edition, p. 368.

is used in the preceding passage, as proved by the testimony of Sir Benjamin Brodie being, on the same page, cited to the effect, that "if we study the habits of animals, we cannot doubt that there are many which, however much they are dependent on their instincts, *profit* also by experience, though in a less degree than man." When a brute creature is so intelligent as to profit by—not imitate, merely—its past experience, it ceases to act by instinct. For, although instinct is often accompanied by objective thought, it is necessarily blind as to the connection between its action and the object towards which it is directed; and when there is thought as to such connection, it must be either imitative or rational, and not instinctive, thought. It cannot be doubted that many of the lower animals act with a design, and as such design would be ascribed to rational or imitative thought in man, we are justified, on the authority of Lord Brougham, as already quoted, in ascribing it in the lower animals to a like mental activity.

But Mr. Grindon denies thought altogether to the lower animals. He says,* "By virtue of his spiritual life, man is an emotional and intellectual being. By virtue of this he *thinks*, speaks, sings, worships, loves, pities, weeps, hopes, laughs, marries,—performs, in a word, the innumerable actions, internal and external, which the observations of thousands of years has never once detected in any of the inferior orders of creation, but has established as the noble diagnosis of human nature." It is clear from this passage that the writer is of opinion that man alone has the power of thought,

* Life, etc., p. 140.

—an opinion which can be reconciled with the acknowledgment that the lower animals have intelligence, only by supposing our author to have no definite idea of its nature, or of that of the mental conditions of intelligence. This view is confirmed by the fact that Mr. Grindon affirms that the lower animals cannot *love*. It is difficult to believe that the dog, which no persuasion can remove from his master's grave, has no feeling or emotion of attachment for him; and yet love and such attachment are only different phases of the same feeling or emotion. The love referred to in the cited passage is evidently the more expansive love which is the fruit of that spirit of reflection on which depends the higher reason which distinguishes man from the lower animals. Thought in its simple phase is inseparable from intelligence; in fact the latter is the necessary result of the former, and a proof of its activity. It is surprising, therefore, that an author who acknowledges the lower animals to have intelligent action, should deny to them both thought and the soul essence of which it is the activity. While seeing clearly that man and animals have a common nature, he affirms that the former alone has a spiritual life. He asserts that* "it is the spiritual degree of life, peculiarly characterized by capacity for rising to its source, which distinguishes between man and the brute. Man has the instinctive life the same as the brute, but he has the spiritual life in addition." This instinctive life is the animal soul which is dissipated with the body, as being merely the necessary accompaniment of physical organization. The source of error here is seen

* Life, etc., by Leo H. Grindon, p. 363.

when it is further affirmed that the instinctive life is "common to all organic things,"—thus placing the lower animals on a par with the organisms of the vegetable kingdom, instead of giving them their proper position as animated creatures; and at the same time, by the application of the principles of the materialistic philosophy, reducing man to the same level.

A third theory as to the difference between the intellectual faculties of man and those of the lower animals, and one which is now very generally received, may be stated in the words of two writers whose authority should not be lightly disputed. "It appears," says Dr. Carpenter,* "that the mind of man differs from that of the lower animals, rather as to the *degree* in which the reasoning faculties are developed in him, than by anything peculiar in their *kind*. Among the more sagacious quadrupeds it is easy to discover instances of reasoning as close and prolonged as that which usually takes place in early childhood; and it is only with the advance of age and the maturity of the powers that the superiority of man becomes evident." Lord Brougham enforces the same opinion when he asserts† that "this difference between the state of man and that of the lower animals is merely the result of the inferior degree of their mental powers, as well as the different construction of their bodily powers." Lord Brougham continues—"clearly this different external conformation, together with their inferior degree of reason, is sufficient to account for brutes being stationary, and for their being

* Dr. Carpenter's 'Animal Physiology,' Bohn, p. 550.

† Dialogues on Instinct, p. 158.

subdued to our use as the Deity intended they should when he appointed this difference." After granting to the lower animals active perception, consciousness, and memory—"without consciousness and memory no animal could know its own personal identity"—the writer last quoted goes on to affirm that they have also the power of abstraction and comparison, and, consequently, "what is commonly called reason, *par excellence*, comprising judgment and reasoning." It is clear, from these words, it is meant that the intellectual faculties of man and of the lower animals are exactly the same in nature, the difference between human and animal intelligence being due to the possession by man of a greater *degree* of the rational faculty, combined with a superiority of physical organization. Difference of physical organization cannot, however, possibly account for the peculiarity in the objects of thought on which man's superior intellectual development is founded. But apart from the influence of bodily organization, what has the theory supported by Dr. Carpenter and Lord Brougham to account for man's superior mental activity? The fact is, that the term "difference of degree" cannot be rightly applied to the intellectual faculties *themselves*, although it may be to their development, and no theory is sufficient which does not explain the origin of the superior thought objectivity to which that development is altogether indebted.

Except so far, then, as this theory asserts that the mental faculties of the lower animals are such as man possesses, it cannot be held to be true. Its error lies in ascribing to the former mental actions which they cannot perform,

owing to the want of reflective perception. These actions are the knowledge of personal identity, arising from the possession of self-consciousness, and that abstraction of qualities on which generalization is dependent. The latter point will be referred to hereafter, and need not, therefore, be further mentioned here. As to the former, it cannot be denied that the lower animals have what is termed *intuitive consciousness*, which, according to Mansel,* is that "of an individual object, be it thing, act, or state of mind, immediately present before one, here or now; that is to say, with a different position in space, or in time, or in both." But in this consciousness there is no knowledge of *self* in relation to those objects. Action with reference to them is wholly instinctive or intuitive, however much the mode of action may be guided by thought or by simple reason. In the words of another writer,† "The animal does not think within itself, I am a dog or a horse, and that is a hare or a cornfield; it is simply impelled by the force of instinct towards the object, without any apprehension of its own personality, as distinct from the thing presented to it." All those acts or states of mind, therefore, which, according to Lord Brougham, are dependent on the knowledge of personal identity, must, in pursuance of his own principles, be denied to the lower animals. Such states depend on *reflective* consciousness alone.

We thus see that the phenomena of the animal life cannot be rationally explained on any theory which supposes

* Mansel's 'Metaphysics,' p. 33.

† Morell's 'Elements of Psychology,' p. 141.

a simple duality of essence-matter and spirit. Not only, however, does *reason* compel us to acknowledge the existence of the soul essence in addition to that of spirit, but it has been asserted by one whose authority orthodox Christians will hardly dispute, although his dictum can be received on such a question only when it confirms the conclusions of reason. St. Paul tells his converts explicitly to "sanctify themselves wholly—body, soul, and spirit." In the Epistle to the Hebrews* the "word of God" is said to pierce "even to the dividing asunder of soul and spirit." The numerous passages of the New Testament in which this metaphysical distinction is made are usually explained either as a mere repetition for the sake of strengthening the language without adding to the sense, or, according to the theory which refers instinctive life to the animal or sensuous soul, as opposed to the immortal spirit. In the former case "soul" is identified with "spirit," these terms being declared to have exactly the same meaning, whilst in the latter case the "soul" is referred to the body as an expression for that instinctive life which is supposed to be the result of physical organization, and to be dissipated with the organism. There does not appear, however, to be sufficient, if any, ground in the words of St. Paul for either of these modes of explanation; and in a remarkable passage in one of his Epistles to the Corinthians, which has long been a puzzle to commentators, St. Paul himself explains his meaning. His words are,† "For what man knoweth the things of a man save the spirit of man which is in him? even as the things of God knoweth no man, but the

* Heb. iv. 12. † 1 Corin. ii. 11.

spirit of God." We have here a direct analogy drawn between "man" and God, and between the spirit of man and the Spirit of God. On this passage Dr. Adam Clarke says, "The *ἀνθρώπων* (man) in the present clause is omitted by the Codex Alexandrinus and one other, and by Athanasius, Cyril, and Virgil of Tapsus. Bishop Pearce contends strongly against the authenticity of the word, and reads the passage thus, 'For what is there that knoweth the things of a man except the spirit of a man that is in him?' 'I leave out,' says the learned bishop, '*ἀνθρώπων*, with the Alexandrian MS., because I conceive that the common reading is wide of St. Paul's meaning; for to say *what man except the spirit of a man*, is (I think) to speak improperly, and to suppose that the spirit of a man is a man.'" The error, however, is not in the text, but in its interpretation. By *man* and *God* are meant the human soul and the Divine soul, or the all-pervading soul essence, and by the spirit of "man" is meant that portion of his being which has the same relation to the human soul as the Holy Spirit has to God Himself. That St. Paul intended to distinguish between the soul, or *psyche*, and the spirit, or *pneuma*, of man, is evident, from the fact that the early Fathers of the Church recognized the distinction, although, through the influence of St. Augustine, it was rejected by the Western Church, and afterwards fell into disuse in the East. Irenæus, Justin Martyr, Clement of Alexandria, Origen, Didymus of Alexandria, Gregory of Nyssa, and Basil of Cæsarea,* "all note the distinction of soul and spirit, and designate the spirit as that which bears the

* See 'The Tripartite Nature of Man,' by Rev. J. B. Heard, M.A., pp. 4, 5.

truest image of God." It is not to be supposed, however, that these Christian Fathers had a clear perception of the relation between soul and spirit. With them, as with their modern followers, the soul, or *psyche*, has to do with the world and the objects of the present life, while the spirit, or *pneuma*, has relation only to God and the future life. The author of 'The Tripartite Nature of Man' says,* "The Pneuma, or conscience toward God, is the *differentia* of man, his title to immortality, his distinguishing mark from all the lower creation." And further,† "As conscience, or God-consciousness, is the *differentia* between man and brute, so, on the other hand, it is the germ of that glorious faculty which, when quickened by God the Holy Spirit, renews us in the image of God. All men have thus a Pneuma, but none are pneumatical save they who are led by the Spirit of God." There is truth in this, so far as it refers the superiority of man over the lower animals, not to the possession of reason, which is one of the faculties of the soul, or *psyche*, but to that of the spirit, or *pneuma*. It is erroneous, however, in so far as it *limits* the operation of the *pneuma* to conscience, or God-consciousness, both of which must be referred, on the grounds laid down in the preceding pages, to the soul, or *psyche*, acting by or through the spirit, or *pneuma*. The range within which the "pneumatical faculty" operates must be enlarged, so as to embrace not only the phenomena of conscience but also those of science, that faculty being in reality identical with the faculty of reflection, the exercise of which is at the root of all man's special knowledge, whether scientific or religious, intellectual or emotional.

* Page 138. † Page 148.

As to the questions of moral responsibility and immortality, it cannot be denied that the soul is the responsible, immortal portion of man's being. As the emotional, thinking, and willing essence, it is the real principle of being, and that which performs, through the physical organism, those actions to which moral responsibility has relation. But the soul is responsible for these actions only because it has a knowledge of their nature as being good or evil. This knowledge depends, however, on the activity of the spiritual perception on which the whole special intellectual development of man is founded, and of which conscience itself—the test of responsibility—is one of the fruits. As the lower animals have not the spirit, or *pneuma*, they can have no knowledge of the nature of actions as being in themselves good or evil, and, therefore, they are not responsible creatures. The question of brute immortality can receive a similar solution. As the soul, or *psyche*, is the principle of being, it must be the soul which is immortal. The lower animals, therefore, have within themselves the principle of eternal existence. We cannot believe that any substance, either material or spiritual, can be annihilated; and, therefore, the brute soul after death must continue to exist. By immortality, however, is usually understood eternal existence in a state of *separate identity*. This state does not depend on the possession of the soul essence, or *psyche*, but on that of the higher spirit, or *pneuma*, the activity of which can alone give the self-consciousness on which, apart from the bodily organism, *separate identity* is itself dependent. The brute soul must exist eternally, but not in a separate state. When, however, it is asked, "In what state, then, does the animal soul

exist after death?" the only answer which can be given is that it must return to the great source of being from which the soul first had its origin. As matter is one and eternal, although its grosser forms are ever changing, so it is with the soul essence, whose phenomenal *forms,* numberless as those of matter, are equally changeful, but which in its substance ever continues one and unchangeable. When treating of the theory of material development, something will have to be said of the origin of the phenomenal existences of soul and spirit, but for the purpose of the present treatise it matters little what their nature may be. It is sufficient to know that they *both* exist, while at the same time certain faculties show their activity throughout the whole of the animal kingdom, proclaiming the intimate relation between all its members.

CHAPTER II.

GENERAL IDEAS AND ANIMAL REASONING.

THE scientific objections which may be urged against the theory of the dual spiritual nature of man, may be classed together as they relate to the *origin* of the mind, or to its various phenomenal developments. The question as to the origin of mind, which as an objection embodies the theory of material development in its most advanced phase, deserves from its importance to be reserved until the last. The objections arising from the several observed phenomena of mental activity, may be divided into those which relate to the intellectual phenomena of the merely animal life, and those which have reference to such mental phenomena as show themselves amongst the different races of mankind. The former are those which are derived from the supposed possession by the lower animals of the power of forming general ideas, and from their use of language.

As to the power of forming general ideas, it cannot

be doubted that if it be possessed by the lower animals, their inferiority to man is only accidental, and the theory of material development has gained an important advantage. A short examination into the origin and formation of general ideas will, however, soon show that man alone has that power. One of the chief sources of error in metaphysics is the want of clear definitions of its scientific terms. It is partly from this cause, but perhaps much more from ignorance, that the notion of the lower animals not being able to form general ideas has obtained currency. We can best ascertain the true signification of the term "general idea," and at the same time show that the lower animals are incapable of forming any such idea, by first pointing out the error of those who assert the contrary. There are three sources of such error. The first arises from supposing a multitude of particular ideas to constitute a general one. We may take as an example of this error the supposition that a dog has a general idea *cat*, because, when the word "cats" is addressed to him he pricks up his ears and becomes excited. The dog expects to see a cat; but if he have any definite notion of the object he anticipates seeing, it can take the form only of some particular animal he has seen before. A process of abstraction must certainly have taken place in the mind of the dog, to enable it to know a cat from any other object; but, as we shall see, this is a process very different in its results from the abstraction which ends in true generalization. The second form of error arises from confounding a mere indefinite notion arising from the activity of the instinctive principle for

a general idea. An example of this error is seen in the ascribing the idea of *danger*, in the abstract, to animals when they do any action having for its object self-preservation. All animals have an instinctive tendency to self-preservation, and when the tendency is called into action by the presentation of an external object, it is not accompanied by an idea of danger in general, but simply by a feeling or indefinite notion of danger showing itself as the activity of instinct. A third source of error is the very common one of mistaking the mental process which ends in the recognition of individual objects as distinct from all others—which may be termed false abstraction—for the true abstraction which ends, not in individualization, but in generalization.

There is some truth at the foundation of all these errors. The lower animals can abstract differences so as to recognize an individual; they have a notion of danger, although it is instinctive; and they can by the aid of memory recall the mental representations of a number of different individuals, out of whose resemblances we form a general idea. That they can get no further will be evident, however, when it is considered what is the real meaning of "general idea," and how such an idea is formed in the mind. When the mind compares several objects, and setting aside all other qualities, fixes on one—for instance *whiteness*—in which they all agree, it forms the general idea which that quality represents. This result must necessarily be preceded by the perception of the quality in each of the objects compared, but it is only as a quality of the object, and not as existing *per se*. This perception the lower animals are capable

of. The formation of the general idea, however, presupposes, not only a perception of the several objects, but also an abstraction of the particular quality in which they agree, and a perception of it as distinct from the objects themselves. That abstraction being once made, the recognition of the sameness of quality instinctively follows, and what is called a general idea, which is simply a recognition of a quality in the abstract, is the result.

It is, indeed, sometimes said that, after all, we cannot represent a general idea except by picturing some particular object which possesses the quality connoted, and, therefore, that general ideas have really no existence actual or potential. It is true that we cannot conceive a general notion except by embodying it in a particular form, but we are not limited in our use of general ideas to known individuals. We can predicate them of all objects, having the qualities connoted, which can *possibly* exist, even although they may never have any existence, and in the present constitution of nature are incapable of existing. General ideas, however, are not the less real because they cannot be themselves embodied. They do, indeed, realize themselves in language, and its symbols have as actual an existence to the mind as any external object. We see this reality in the power the mind possesses, through language, of affirming of an object, the negation of a particular quality, without any comparison with it of an object having that quality. General ideas, as such, can certainly exist only in language signs, but, as they do thus exist, the possession of those signs is the test of that of general ideas. The

lower animals not having, and not being capable of forming, language signs, if they can have general ideas they must be able to conceive something which, to them, cannot exist.

It is very doubtful whether any person thus recognizing the true nature and origin of general ideas would assert that the lower animals ever possess them. The contrary opinion has evidently been formed through observing that they exercise, in association with the faculty of reasoning, a certain power of abstraction, and through supposing that the exercise of this power is necessarily accompanied by generalization,—in fact, that reasoning must be founded on general ideas. That the lower animals have the faculty of reasoning cannot be denied; but, if reasoning be simply, as appears to be the case, the formation of a judgment of relation between two objects of thought, the possession of general ideas is not essential to it. Reasoning is not necessarily from the general to the particular, but may be from the particular to the particular, and such is the nature of all simple reasoning. As Mr. Mill very clearly proves, there are never three terms used in the lowest phase of reasoning, the use of the syllogism being evidence of a much more advanced phase of thought. The general term is, indeed, necessary to all reasoning, but in its simplest form that term is supplied by instinct, and the intuitions are themselves the general term of the syllogism. The distinction between brute and human reasoning thus appears to depend on that higher or spiritual perception, to the exercise of which the superiority of human intellectual development is due. While the lower animals are in-

debted to instinct for the general term which must give certainty to their reasoning, man is indebted to his perception of the qualities of objects, the generalizations of which are expressed as general terms, for the incontrovertible conclusions of the syllogism. Without this spiritual perception generalization is impossible.

But it is said that generalization is founded on abstraction, and that as the lower animals have the power of abstraction, they must, therefore, be able to form general ideas. That animals have a certain power of distinguishing between individuals is true, as otherwise they could never identify any particular object. This is the faculty which Lord Brougham refers to when he asserts * that "the bird never throws stones into a river or puddle to raise the water; but it does throw them into the ewer. It abstracts water from the thing containing it, and could not reason upon the effects of the operation without a process of abstraction." Lord Brougham adds † that every man, however stupid, has in certain supposed cases, "the idea in his mind of colour and of heat independent of other qualities, that is, abstracted from other qualities; he classifies the white bodies together, independent of their differences; the hot bodies independent of theirs; and he contrasts the white metal with the white snow, because they differ in temperature, without regarding their agreeing together in colour." It is at once evident how different this process of abstraction is from that performed by the bird, and how inconclusive the reasoning on which Lord Brougham rests his assertion that the bird and the man

* Dialogues on Instinct, p. 156. † Ibid. p. 154.

have the same power of abstraction. It is clear that the mental process has relation, in the one case, to the qualities of objects, while in the other, it refers simply to the object itself. In the one case, it is accompanied by a perception, followed by abstraction, of the qualities in which several objects agree; in the other, the only perception is of the qualities which go to make up a particular object; and if there is any abstraction, it is of the qualities in which it and other objects *differ*. In true abstraction, there is the perception of the qualities in which objects resemble each other, and it ends in *generalization*, whilst in false abstraction there is perception only of certain qualities which other objects have not, and it ends in *individualization*.

A striking confirmation of this view of animal reasoning, and at the same a conclusive argument in favour of the theory enforced in the preceding pages as to the distinction between the mental faculties of man and those of the lower animals, is found in the fact that, while the capacity of the former for mental improvement increases with every increase in his knowledge, the utmost range of animal intellectual development is quickly reached. Some animals by domestication are capable of a certain change of character, and, in rarer instances, of remarkable cleverness, which may be termed brute civilization; but it may be doubted whether domestication is not with most animals effected at the expense of intelligence, and whether a clever animal is not generally spoilt for everything but the performance of the tricks he has been taught. The peculiar sagacity of certain species of the dog is perhaps the strongest example of brute intelligence

combined with domestication. How far those special traits of intelligence observable, for instance, in sporting dogs, are due to education of the particular individual and not to instinct, is doubtful. The most probable opinion is that actions, which were originally the result of education, have formed in the descendants of the animals first subject to it an *instinctive tendency*, which requires to be drawn out in each case by special training. No one will affirm, however, that special traits of so-called *cleverness* in animals are ever transmitted, the only fruit of brute education the offspring receives from its parent being such an inclination to do certain actions as we see in undeveloped instinct. This is, indeed, merely another example of the tendency of all brute actions to become instinctive, and is but a proof of what has been often observed, that, however instinctive brute action may be, considered in its general aim, the particular actions in which instinct reveals itself are not necessarily unchangeable. How superior is the process observable in the progress of human mental activity! Most of the daily actions of life do, indeed, become habitual, and it is the inclination to perform them transmitted from the father to the child which lies at the foundation of common civilization. So those nobler actions, the expression of the activity of the higher reason, have a tendency, through constant repetition, to become habitual, but as such actions have their commencement in the application of general truths present to the mind, so their reproduction is merely the result of the activity of those general truths, unobserved because habitual, but capable of being at any moment recognized by the

exercise of that reflective faculty by the operation of which they were first discovered.

But it is objected that many of the lower animals have a language which not only answers all the purposes for which language can be required by them, but which is capable of improvement. When treating of the origin of language, it was shown sufficiently that the lower animals can never, except in some rare cases of imitation, have that human speech which is the expression of general ideas. It cannot be denied, however, that all animals are able, by sounds or otherwise, to make known certain feelings, or notions, which they have in their own minds, to others, and *that* by which the communication is made is fairly called language. It may even be allowed that some animals have the power of giving a continued expression to their thoughts, although it may be doubted whether the stories told of the assemblies and courts of justice said to be held by sparrows, rooks, and swallows, are not somewhat over-coloured. Nor can it be denied that the language of some animals is capable of improvement, as there seems every reason to believe that the bark of the dog, the mew of the cat, and the crow of the cock, are actual examples of the development of brute language consequent on domestication. But why has the dog never got beyond a bark, the cat beyond a mew, or the cock beyond a crow, seeing that they have all been domesticated for probably several thousands of years? It is because brute language stops where that of man begins. In both cases it has its origin in the instinctive utterance of the emotional nature, but man alone possesses that faculty by the exercise of which lan-

guage may be moulded into the instrument of thought. Perhaps the most conclusive proof of the impossibility of the lower animals getting beyond a certain degree of mental development is furnished by the capacity of parrots and some other birds for imitating human speech. Here we have the use of that which is not only the highest result, but the very instrument of man's mental activity. Possessed now of those word symbols which, in the mind of man, are the embodiments of general ideas, surely we ought to see the buddings of a higher life—the commencement of brute civilization. If, however, we look for such a change, we shall be disappointed, and that because there is no response in the merely animal mind to the symbols so glibly uttered.

CHAPTER III.

MAN—SPECIES OR VARIETIES.

ANOTHER class of objections necessary to be considered are those which may arise from an observation of the phenomena which show themselves in the intellectual development of different races of mankind. It is asserted that some of these races are more nearly allied, physically and mentally, to the lower animals than to civilized man, and that they are utterly incapable of being raised from the brute state. The latter assertion is, however, beside the question, seeing that incapacity for civilization may be the result of other causes than that of an original imperfection of physical or mental structure. The true question is whether all men have not that faculty which alone distinguishes man from the lower animals—the faculty of spiritual perception—the exercise of which leads to the formation of general ideas. If the origin and significance of human language be such as pointed out in the preceding pages, the use of that language may

be proof of the possession—or rather it is itself the actual possession—of general ideas. It has been sometimes declared that there are races of men without any spoken language, but, when sought for, they always elude the search. The Beddahs or Veddahs, of Ceylon, have been thus classed, but without any foundation. They certainly appear not to have a voluminous language, but they have words sufficient to express all their wants, and they are really but little worse off in that respect than the English labourers, referred to by Professor Max Müller, who "had not three hundred words in their vocabulary."* Perhaps, however, the silence of the Beddahs is the result rather of taciturnity than of want of language. A writer in the 'Encyclopædia Metropolitana' says, "their extreme taciturnity is indeed a remarkable characteristic in this singular and well-disposed pastoral tribe; and one who had been seized by the Dutch, on account of the murder of one of their couriers, would not answer a single question put to him, till interrogated by the Governor himself. When asked why he had killed this unoffending traveller, he simply answered that 'his chief had ordered him to do so.' When the Governor inquired 'whether he did not think himself deserving of death?' 'You must judge of that yourself,' was his reply. When sent out in irons to work at the fortifications, he neither made any resistance nor uttered a single word; and he walked away in the same silence and indifference when finally liberated." Dr. Prichard, in his 'Natural History of Man,' says of the Veddahs, or Beddahs: "They speak a dialect of the same lan-

* Lectures on Science of Language, 1862, p. 271.

guage with the Singhalese, and they are probably descended from one original stock, of which some tribes became civilized, while others remained in their original barbarism. They are of the original Hindu religion, which prevailed before the introduction of Buddhism—like the Jamuls or Malabars who inhabit the northern part of the island."

It is objected, however, that many uncivilized races have few, if any, language signs expressive of general ideas. A late writer says,* "In the 'Mithridates' we find it noticed that the Society Islanders have words for dog's tail, bird's tail, and sheep's tail, yet no word for tail; that the Mohicans have verbs for every kind of cutting, and yet no verb to cut; and forms for 'I love him,' 'I love you,' etc., but no verb meaning 'I love.'" Again, "The Australians have no generic word for fish, bird, or tree." A similar want of abstract terms is found in other languages, among them even the Anglo-Saxon, which had to borrow from the Latin the word *color*, although it had words for all shades of blue, red, green, yellow and other colours. The emotion of loving (*e. g.*) is expressed, but only when it has relation to a particular object, and from this it is inferred that the expression is not accompanied by any general idea in the mind. It is, however, not to the presence of symbols representative of general ideas that language owes its value, but to the *capacity* for the development of such symbols language possesses. The actual use of signs, *as* symbols of pure general ideas, is a proof of a very high phase of intellectual activity, and one which few languages in

* Farrar's 'Chapters on Language,' p. 199.

their earlier stages can show. The capacity for the formation of such signs is, however, possessed by all languages, and notably by those very ones which are referred to as having a paucity of words denoting general ideas. This capacity must, indeed, be necessarily inherent in all language, according to the explanation of its origin before given—*general terms* being merely the final phase of its evolution.

Perhaps, however, general terms are not so scarce in the languages of savage tribes as is sometimes supposed. Many of them, and especially those of the American peoples, appear to be rich in *adjectives*. Whether adjectives were originally formed by the addition either of the genitive sign or of a demonstrative pronoun, or whether, as is in many cases probable, they were originally substantive signs, a slight change having taken place in the word-termination when they took the general signification, it cannot be denied that adjectives express general ideas. The genitive case of the Thibetan, Sanskrit, and Greek languages * was "formed from the nominative by the addition of the adjective sign," and Professor Max Müller says, "We perceive how accurately the real power of the genitive was determined by the ancient Greek grammarians, who called it the general or predicative case." It can be well understood, on the theory that language was originally expressive of general ideas, how adjectives could be derived from substantive signs. As it came to be observed that the various qualities connoted by the primitive language symbols were possessed by other objects than those to which they were first ap-

* See Max Müller's Lectures on 'Science of Language,' 1862, p. 106.

plied, these symbols would lose their *particular* signification, and either cease to be applied to the objects which originated them—unless, as sometimes happened, the same word took different forms, through the gradual change which all language undergoes—or come to be associated with some other sign, by the addition of which particular objects might be distinguished from all others of a like kind, the primitive substantive sign thus taking its place as an adjective. Adjectives thus derived are, therefore, in reality simply general terms which were originally used to denote particular objects by their qualities, but which afterwards become used to connote the qualities themselves, independent of such objects. Whenever, therefore, any race uses such adjectives, we may safely affirm that it possesses general ideas.

Another, and more striking, proof of the existence of a mental activity which is inconsistent with an absence of general ideas, is found in the artificial and complex character of the grammatical structure of the languages of many barbarous races. On this subject Frederick von Schlegel * writes, "In those languages which appear to be at the lowest grade of intellectual culture, we frequently observe on a closer acquaintanceship a very high and elaborate degree of art in their grammatical structure. This is especially the case with the Basque and the Lapponian, and many of the American languages." Alexander von Humboldt says † of the American races that they are "singularly remarkable for the degradation to which their mental faculties have fallen below

* 'Philosophy of Life,' Bohn, p. 395. † Ibid. p. 404.

the original standard," while the American dialects resemble "the relics of some great ruin or mighty devastation." After an exhaustive investigation of the American languages, including those spoken throughout the whole length of the continent from Greenland to Cape Horn, Du Ponceau asserts * that they are in general "rich in words and in grammatical forms, and that in their complicated structure, the greatest order, method, and regularity prevail." The same may be said of the African dialects, and even of the language of the Australian aborigines, who, although in physical structure further removed from the ape than the negro, are much less advanced in civilization than the latter.†

To the argument for the use of general ideas derivable from the possession of language symbols, may be added that which is afforded by the actions peculiar to man, many of which, even among the lowest savages, are such as can be accounted for only on the supposition of the exercise of the power of generalization. Of this nature are the various operations required for the exercise of the simplest arts. The discovery of the most apparent law of nature, is as much the result of generalization as the formation of the most complex science. Therefore, the invention of warlike weapons, and the discovery of the use of fire, are proofs of the prior formation of general ideas. The same may be asserted of the use of medicines, and generally of those many actions which in a civilized man would be ascribed to a like source.

* Black's Cyclopædia, article "America."

† See Encyc. Brit., last edition, article "Language." Prichard's 'Natural History of Man,' and 'Physical History of Mankind.'

This may be said especially of the reference of particular actions to a standard of morality, however erroneous, which can have been formed in the mind only by a process of generalization. The development of the religious element, which, as a belief, must, in the words of Professor Waitz,* be considered as "the conviction of the existence of invisible, mysterious powers, which in various modes influence the phenomena of nature, so that man and his fate are dependent on their favour," is due to the exercise of the same mental power. In the simple religious, or superstitious, ceremonies of the savage man, we have sure proofs of his superiority over the lower animals, as they are responses of the soul essence to the activity of the reflective spirit on the operations of nature, and they bear the same relation to the experiences of the uncivilized life, as the more refined religious worship of Christianity bears to the experiences of the higher life of civilized man.

It is asserted, however, that, even if the mind of the negro, for example, be essentially superior to that of the anthropoid ape, his intellectual development is so small, that he must be of a species quite distinct from, and vastly inferior to, that of the European. It certainly has not been proved, and it is probably incapable of proof, that this incapacity for civilization, if it exist, would continue *under all circumstances*, and that it may not be the effect merely of peculiar conditions of existence, which, if changed, would result in the removal of that incapacity. But if the negro were shown to be utterly incapable of receiving more than the rudiments

* Introduction to 'Anthropology,' vol. i. p. 278.

of civilization, it would be no proof of his absolute and *essential* inferiority to the European. This is evident from the analogous case of the differences of intelligence observable among the members of the animal kingdom. The development of the faculties of the soul essence is dependent on the possession and activity of the bodily organs of special sense, and there is a direct relation between the development of those organs and animal intelligence. So, there is a relation between the activity of the faculty of spiritual perception, the possession of which is peculiar to man, and the development of the brain, or that portion of it with which the reflective faculty seems to have the most intimate connection. If this be so, we should expect to find that those races of mankind who have the most inferior type of brain structure have also the least intelligence. This is, indeed, just what the advocates of the notion of a difference of species among the human race affirm to exist. As well might it be said, however, that the mental faculties of the child are *absolutely* inferior to those of the man, because the functions of the brain not being fully developed, the former has not intelligence equal to that of the latter, as that the negro and the European are of different species because the brain of the one is inferior to that of the other.

It may be affirmed without fear of contradiction that all men have similar mental powers, and also the faculty of spiritual perception in common, and, if this be so, they must all have an equal intellectual *capacity*, the development of which, however, being dependent on physical conditions not equally favourable in each case,

is with some races greater than with others. When, therefore, it is asserted that certain races of mankind differ in species, it can mean only that they have differences of physical organization, or rather,—as intelligence has relation chiefly, if not altogether, to the brain, as the highest form of the nervous structure,—that they have different degrees of brain development. There is really no analogy between this question of difference of species in relation to man and as it refers to the lower animals. In the latter case, the difference is accompanied by certain specialities of physical structure which have no apparent influence on the development of the mental faculties, whilst in the former, the physical differences are observable chiefly as they affect those faculties. This want of analogy is evident, when it is considered that many of those who assert the existence of different species among mankind explain the origin of species in one way as it has reference to man, and in another as it refers to the lower animals. In the former case, specialities of physical structure are accounted for by supposing the perpetuation of certain abnormities which have made their appearance in individuals of a common stock, the descendants of which, being at first varieties of a species, have at last become fixed as species of a genus. In the former case, however, the differences of physical structure are declared to be natural, and we must, therefore, suppose the subjects of them not to have had a common origin. The want of that analogy is still more evident when we consider that, while the result of cross-breeding between different species of the lower animals when prolific is merely to give a fresh

combination to certain peculiarities of physical structure without leading to any increase of mental development, the result of cross-breeding between an inferior and superior race of mankind has a tendency, if not to destroy the external peculiarities of race, yet to remove those hindrances to the development of the brain on which intelligence depends. Although this is no proof of unity of origin of mankind—as the apparent fixity of specialities of physical structure in the lower animals is no certain proof of diversity of origin—yet it strikingly confirms the proposition that all men have the same mental faculties, and, therefore, that no race has any *necessary* inferiority—that is, apart from peculiar conditions of physical organization. A consistent advocate of the Darwinian theory of natural selection will have no difficulty in allowing the truth of what has been affirmed. He grants to all men, if not a unity, yet an equality of origin, and he explains the mental peculiarities of different races by the influence of external conditions of life, which have acted on the physical organism, favourably or unfavourably, and thus hindered or assisted the development of the mental faculties.

It cannot be denied that the physical structure of many savage races is at present such as to render it impossible for them to attain to any high degree of mental development; but it is by no means certain that any of them are utterly incapable of civilization. If we take as an example of apparent intellectual incapacity that race which is so often said to be the one most nearly allied to the anthropoid apes in physical structure—the negro, we shall find that he is clearly capable of *some* degree of

civilization. Professor Waitz acknowledges the truth of the assertion as to the physical resemblance of the negro to the ape, but he adds:* "that the negro manufactures tools, and learns from experience to subject nature to his wants, that he establishes communities, and that he possesses an artificially constructed language and religious ideas, is undoubted." Dr. Hunt, the late President of the Anthropological Society of London, who has shown much interest in this question, admits, while claiming for the European a position in nature superior to that of the negro,† "that the negroes imported into, or born in, the United States become more intelligent and better developed in their physique generally than their native compatriots of Africa," such intelligence being explained "by their ceaseless contact with the whites." Dr. Hunt afterwards asserts ‡ that "we see in this improvement of the negro simply the effect of education;" adding, however, that the mental development of the negro is incapable of being carried beyond a certain point. In support of the latter assertion, he states that the negro has remained for thousands of years the same uncivilized race we now see it to be, and affirms § that there is "no reason to believe that the pure negro ever advances further in intellect than an intelligent European boy of fourteen years of age." The inconclusiveness of the argument for the absolute inferiority of the negro race is evident. It is

* 'Introduction to Anthropology,' vol. i. p. 208.

† 'The Negro's Place in Nature,' memoir read before the Anthropological Society of London, 1863-4, p. 32.

‡ Ibid. p. 33. § Ibid. p. 37.

no wonder that the negro mind remains in the same state of incomplete development, so long as his physical organization and the external conditions of existence to which that organization owes its peculiarities remain unaltered. The real question, however, is, whether the negro mind must remain in the same imperfect state under all conditions, or whether its faculties could not be more fully developed if the unfavourable conditions were removed. The immediate cause of inferior mental activity is imperfect physical organization, and if, on that being improved, the negro, or his descendant, advances in civilization, his mental inferiority cannot be natural, or, at least, absolutely fixed by nature.

Such an example of improved physical organization combined with more perfect mental development is seen in the mulatto—the offspring of the cross between the negro and the European. Professor Waitz asserts* that "there can be no doubt that the mulatto is more gifted than the negro, though impartial observers still doubt whether the greater intelligence of the mulattoes, who are, on this account, preferred for domestic service, is the consequence of an improvement of the race or of a superior education and of more intercourse with the whites. In French West India (Guadeloupe) nearly all the trades are in the hands of the mulattoes, and some of them are rich. . . . In every rank of society, among lawyers, physicians, statesmen, and scholars in Brazil, there are mulattoes who distinguish themselves by talent and intelligence; they seem also to possess great capacity for the fine arts, so that men of colour are there received

* 'Introduction to Anthropology,' vol. i. p. 178.

in the best society." It ought not to be difficult to show the truth or falsity of these assertions; and if they be true, of which there seems to be little doubt, they prove conclusively that the possession of negro blood is, under certain conditions, quite compatible with a high state of civilization.

To get rid of the difficulty arising from the intellectual activity of the mulatto, it is affirmed by those who hold the negro to be naturally inferior to the European, that the mulattoes would become extinct if they could be cut off from any infusion of new blood from the parent stocks. Why the mulattoes should be more limited in their prolificacy between themselves than the offspring of the cross between the Indian and the European, known as the mestizo, which has flourished in Mexico and other parts of Spanish America, is not explained. If the examples to the contrary cited by Professor Waitz can be trusted, there is in reality no such distinction between the mulatto and the mestizo. There is one example of unlimited mulatto prolificacy, which Professor Waitz does not refer to and which is perhaps of more importance than any mentioned by him, as the facts are simple and capable of complete verification. It is true that the dark race to be mentioned are not of the African negro type, but the descendants of their union with Europeans may properly be classed with mulattoes. In the year 1790 the Island of Pitcairn was settled by nine of the mutineers of the 'Bounty' and by six male and twelve female Tahitians. Within ten years after, the whole of the Tahitian men and all but one of the Englishmen had perished in the course of their quarrels.

The Tahitian women had several children by the white men, and their descendants so multiplied that Pitcairn's Island became too small for them, and in 1831 they were removed to Tahiti. Soon afterwards, however, they returned to Pitcairn, and in May, 1856, they were finally removed to Norfolk Island, where they still remain. At this period they had no knowledge of trades or of agriculture, but John Adams, the survivor of the mutineers, had while he lived instructed them from a Bible he possessed, and every one who visited them was struck with "the kindness and gentleness of their character and the virtuous simplicity of their life." This interesting people still continue to increase in number, and there appears to be no ground for supposing that the limit of their prolificacy has been reached.

There are certain data from which it might be inferred that the admixture of the blood of the negro with that of certain European peoples, rather than with that of others, is the more likely to produce a prolific stock of half-breeds, and that the union of the white man with the black woman is more likely to be productive than that of the black man and the white woman. Any objections, however, arising from these facts do not touch the question; and so long as the example of mulatto prolificacy given by Profe[illegible] of the Pitcairn Islanders, be not [illegible] be asserted that the Europ[illegible] such a difference of phys[illegible] descendants to be ne[illegible]

But, supposing [illegible] would become [illegible]

fusion of fresh blood from the parent stocks," the argument thence derived for the absolute inferiority of the negro race is very weak. It may be safely asserted that ultimate perfect sterility among mulattoes would be quite consistent with sameness of species, and, therefore, with the essential equality of the European and negro races. The non-prolificacy of the mulattoes among themselves has been compared to the sterility of the hybrids resulting from the cross between different species of the lower animals. Now, there is this difference between the two cases, that, while in hardly any one well-authenticated instance has intercourse between animal *hybrids* been fertile, that among mulattoes is almost invariably fertile through, at least, several generations, and only ***gradually*** becomes sterile in any case. This question of **sterility of hybrids, in relation to the "origin of species,"** is considered a very difficult one by the advocates of the theory of natural selection, and Professor Huxley asserts* that "Mr. Darwin, in order to place his views beyond the reach of all possible assault, ought to be able to demonstrate the possibility of developing from a particular stock, by selection, two forms, which should either not breed with another, or whose cross-breed is sterile with one another." [illegible] species remains to be [illegible] that those who make it [illegible] speciality of structure, [illegible] which is the sterility of [illegible] such sterility may, there- [illegible] difference of species does [illegible] of Organic Nature,'

not in the particular instance exist. It is sometimes argued, however, that even fertility among cross-breeds cannot be received as proof of sameness of species, as a fertile cross-breed has been produced between the hare and the rabbit, which are acknowledged by naturalists to be of different species. This argument is, however, not so conclusive as it at first sight appears. Supposing fertility to be really a sign of sameness of species, the fertility of the cross between the hare and the rabbit really proves that there is no such difference of species between them as is imagined, and that, in fact, they are only varieties which, according to the theory of Mr. Darwin, have not yet become fixed in their speciality.

The prolificacy of the union between the negro and the European, whether it be limited or not, has an important consequence. Even the lower animals, which cannot produce fertile hybrids among themselves, however much their physical organizations may vary, have an absolute equality of mental faculties; and we are justified, therefore, in asserting the same of the negro and the European, who at all events are prolific in their intercourse to some extent. Both must have, not only the intellectual faculties which the lower animals possess in common with them, but also the faculty of reflection or spiritual perception, the activity of which underlies all man's civilization and distinctive mental phenomena. This reasoning applies to all the inferior races of mankind as well as the negro, and their intellectual inferiority must be referred to the operation of a cause—namely, defect of physical organization—which we are justified in affirming can be removed, until the contrary is shown.

Even then, however, the inferiority of savage tribes must be referred to the influences of secondary external conditions, and not to any inherent physical defect, for it is highly probable, as we shall see, that the persistence of such conditions may result in a physical degradation which shall become so fixed that no change of circumstances can alter it without the existence of the race being itself imperilled.

An argument against the absolute inferiority of the uncivilized races of mankind may, indeed, be drawn from that very persistence of degradation which has been adduced as a proof of such inferiority. It is known, that long continuance in a particular physical state, or of a peculiar mental condition, has a tendency to perpetuate such state or condition, and gradually to make it so fixed that it becomes almost unalterable. This, which is true of individuals, is no less true of nations, the so-called *peculiarities of race* being themselves the result of such a long continuance. As particular examples, reference may be made to the Chinese and Hindoos, peoples whose civilization, although carried back to a fabulous antiquity for its commencement, has yet for centuries exhibited the strange phenomenon of arrested mental development. The fact of the Hindoo's being of the great Aryan family of nations is a sufficient proof that the intellectual phenomena he has so long presented are not owing to any mental or physical inferiority or defect. Even now we see him awakening from the sleep of ages, and asserting his rightful position in the front ranks of intellectual progress. This improvement is, however, by no means general, and in the present

state of the Hindoo and Chinese intellect we have exactly the same phenomenon as that presented by the negro, and even by the races of mankind below him in the scale of civilization. The explanation of the arrested development of the Chinese will be also that of the degradation of the negro or the native Australian, and an examination of the subject will show that both may be accounted for by the influence of the external conditions of existence, without requiring in either case an original inferiority of physical or mental capacity. The question resolves itself into an inquiry as to the origin of civilization, or rather of the physical and mental peculiarities which constitute race characteristics, and their influence on intellectual progress.

CHAPTER IV.

CIVILIZATION AND RACE.

"CLIMATE, food, and soil," says Mr. Buckle,* when treating of the causes of civilization, "have originated the most important consequences in regard to the general organization of society, and from them have followed many of those large and conspicuous differences between nations which are often ascribed to some fundamental difference in the various races into which mankind is divided." The rise of the ancient civilizations of Egypt, India, Mexico, and Peru, Mr. Buckle explains as the result of the fertility of the soil, arising from the peculiar geographical conditions of those countries. On the other hand, he refers the civilization of Europe to the influence of climate, which being colder than that of the older continents,† "the reward of labour was increased, and the distribution of wealth rendered more equal than was possible in countries

* Introduction to 'The History of Civilization in England,' 3rd edit., vol. i. p. 36.

† Ibid. p. 59.

where an excessive abundance of food stimulated the growth of population." Mr. Buckle adds,* that "the only progress which is really effected depends not upon the bounty of nature, but upon the energy of man. Therefore it is that the civilization of Europe, which, in its earlier stage, was governed by climate, has shown a capacity of development unknown to those civilizations which were originated by the soil."

The truth of this explanation, so far as it applies to the mere *development* of civilization, cannot be denied; but it is far different when the *origin* of civilization has to be accounted for, or, rather, the possibility of its development, which is apparently wanting to some of the races of mankind. Mr. Buckle, indeed, denies the possession by any race of a special aptitude for intellectual progress, and, therefore, according to his theory, a negro or a native Australian ought, when placed under the climatic influences of Europe, to exhibit the same advanced phase of civilization as the European. This, however, is utterly inconsistent with the results of observation and experience, and to explain the difference of mental capacity different races exhibit, one school of anthropologists declares that the incapacity of the lower races is absolute and innate. This explanation would be perfectly satisfactory, if the truth of the latter proposition could be established. This, however, is impossible until the origin of "race" has itself been accounted for. The intimate connection between this further question and that of the rise of civilization is evident. For, if cer-

* Introduction to 'The History of Civilization in England,' 3rd edit., vol. i. p. 46.

tain races alone have a capacity for indefinite intellectual progress, then the explanation of the race characters of mankind will also be that of the origin of civilization itself. It will be found, indeed, that "race" and "civilization" are but different phases of the same great question.

Mr. Buckle draws an analogy between the extinct civilizations of the Western Hemisphere and those of Egypt and India. Up to a certain point, the justice of the analogy drawn cannot be denied. It has relation, however, only to the *development* of civilization, while there is a further analogy of equal importance having relation to its origin, which this writer has not referred to. Mr. Buckle recognises the value of the great mountain range, on the elevated plateaus of which the extinct peoples of Mexico and Peru dwelt, as elements in the production of that condition of the soil necessary to the development of their civilizations. To him, nevertheless, this significance seems to have relation only to heat and moisture. If, however, we turn to the "old world," we find that its ancient civilizations also had their rise in elevated regions. Hindoo tradition points to the north-west of the peninsula as the route by which the Aryan conquerors descended to overrun the great plain of Upper India, and there is little doubt that the original habitation of the Aryans was in the highlands of West Central Asia. Professor Max Müller supposes that a portion of these Aryans—those who were worshippers of Ormuzd—afterwards "migrated from India to the north-west," their national name being preserved in their sacred book, the Zend-avesta. This book men-

tions a country called *Airyanem vaêjo*, "the Aryan seed," which probably was "near the sources of the Oxus and Yaxartes, the highest elevation of Central Asia," and from thence the Aryans advanced towards the south and west. As to the state of civilization to which the Aryans had attained before their separation, Professor Max Müller, from the evidence of language, says * that they "knew the arts of ploughing, of making roads, of building ships, of weaving and sowing, of erecting houses. They had counted at least as far as a hundred. They had domesticated the most important animals, the cow, the horse, the sheep, the dog; they were acquainted with the most useful metals, and armed with iron hatchets, whether for peaceful or warlike purposes. They had recognized the bonds of blood and the bonds of marriage; they followed their leaders and kings, and the distinction between right and wrong was fixed by laws and customs. They were impressed with the idea of a Divine Being, and they invoked it by various names."†

Thus far the Aryan civilization; but it is not improbable that that of Egypt, which is carried back by its monuments to a period 3500 years B.C., may also be traced to an Eastern source. There is great difficulty in fixing the race affinities of the ancient Egyptians. A late writer says,‡ "The language of ancient Egypt bears marks of the highest antiquity. It has the agglutinative and monosyllabic structure of the Turanian dialects.

* See 'Lectures on the Science of Language,' by Professor Max Müller, p. 226. † Ibid. p. 223.

‡ Mr. Philip Smith's 'History of the World,' vol. i. p. 71.

It exhibits points of affinity with the Chinese as well as with the Nigritian dialects, and it partakes of a Semitic character, especially in its pronouns and its grammatical construction. This evidence agrees with the physical qualities, the habits, and the religion of the ancient Egyptians, to place them as a link between the Semitic and Nigritian races." This is probably nearer the truth than the opinion of Mr. Gliddon,* who supposes the Egyptians to have been indigenous to the soil of the country they inhabited. Even this writer, however, admits the early intercourse between the Egyptians and Semites, and there is at least *some* probability that the primitive seat of Semitic civilization may have been the birthplace also of that of Egypt. Many of the earliest Egyptian portraits extant show purely Semitic features,† and Lepsius considered that the Asiatic shepherds who conquered Egypt "imposed their type and language upon the native race, although the Egyptian people and their tongue still remained essentially African." By some philologists, indeed,‡ the Egyptian language, from the earliest hieroglyphic inscriptions to the Coptic, which ceased to be spoken after the seventeenth century, has been referred to the Semitic class of dialects.

The table-land of Iran is separated from the Persian Gulf and the lower part of the valley of the Tigris by a range of mountains which, with a part of the adjacent lowlands, are known as *Elam*. According to certain writers, the primitive Elamites were a Semitic people.

* See Nott and Gliddon's 'Types of Mankind.'

† Ibid. p. 225.

‡ See Professor Max Müller's 'Lectures on the Science of Language,' p. 269.

who were finally subjugated by Scythic invaders.* At the extremity of their mountain chain, the Elamites were in contact with the Japhetic Persians of the table-land of Iran. It is curious that one of the earliest seats of the Hamitic race appears to have been situate not far from this point. According to Mr. Philip Smith,† the Cushites peopled the highlands of Susiana and Persia proper; and Bunsen states that a great Hamitic migration westward took place before that of the Semitic peoples. Now, if the Egyptians were "a link between the Semitic and Nigritian races," or if they received their civilization from a Semitic source, it may be traced to the highlands of West Central Asia, into close proximity with the seat of the early Aryan civilization. If this were so, the curious fact presents itself that all the civilizations of antiquity referred to by Mr. Buckle had their origin in elevated regions, and this point of analogy suggests the existence of a more fundamental relation between the peculiar geographical formation of a continent and the civilization of its aboriginal inhabitants than any Mr. Buckle has allowed. According to him, certain physical conditions of nature are necessary for the development of civilization; but these conditions must be preceded by another—not merely geographical—which has the same relation to the *origin* of civilization, as they have to its development. The latter condition has relation to "race," and it is owing to his neglecting to consider the influence of race in the development of civilization that Mr. Buckle's theory is inade-

* See Nott and Gliddon's 'Types of Mankind,' p. 534.

† See 'The History of the World,' vol. i. p.

quate to explain various peculiarities observable in the intellectual progress of different peoples, and that it altogether fails to account for the apparent incapacity for such purposes which some races exhibit.

It is evident that, if there be such a relation as this between the formation of a continent and the civilization of its aboriginal inhabitants, it must have a *geological,* and not merely a geographical, basis. Physical geography tells us the nature of the influences which are ever at work acting on the external formation of a continent; but geology goes deeper, and tells us how that formation had its origin, and how long those influences have been operating. From this standpoint, *time,* the consideration of which is so essential to enable us to explain the origin of race characteristics, is seen to be an important element in civilization. If two peoples of similar physical structure and of equal mental capacity, were at the same time placed under conditions of existence equally unfavourable for civilization, and afterwards those conditions were improved, in the one case much earlier than in the other,—we may imagine that the people first feeling the influence of such improved conditions would be much more likely to exhibit a capacity for civilization than the one coming under their influence at a later period. We can even imagine that those unfavourable conditions may in the latter case have operated for so long a time, that all capacity for civilization will have ceased, through the physical organization of the people subject to them having lost its plasticity, and their mental faculties, therefore, the power of development.

All great alterations in the climate and soil of a country may probably be traced to a preceding change, either mediate or immediate, in the structure or position of some portion of the earth's crust. If for a long period no geological change, sufficient to effect an alteration of climate or soil, has taken place, and these conditions of existence are unfavourable to civilization, the people subject to them must, the longer such conditions continue, show less and less capacity for civilization. There can, therefore, be no *primâ facie* objection to the proposition, that a relation must subsist between the period which has elapsed since the last great change a continent has experienced, or, in other words, its *age*, and the capacity for civilization of its aboriginal inhabitants. It may be impossible to prove the absolute truth of this proposition, but its probability is supported by a great array of facts. Such a relation as that suggested has been pointed out by several writers with reference to the Australian continent, whose aboriginal inhabitants are, according to Dr. Seemann,* "the oldest as well as the lowest race of men." By this must, however, be understood merely that the Australian continent has for the longest period retained its present geographical configuration, comparative age having no relation to the origin of the continent itself.

It appears to be now clearly established that when the earth's surface was first overspread with organic life, its fauna and flora had everywhere a great affinity. This is peculiarly observable of the earliest rocks in which fossils have as yet been discovered—the Silurian and Cam-

* Popular Science Review, 1866, p. 26.

brian groups—the organic agreement of which has been clearly traced throughout Europe and North America, and also in South America, Australia and India. Sir Charles Lyell says,* "In all these regions the facies of the fauna, or the types of organic life, enable us to recognize the contemporaneous origin of the rocks." He adds, "but the fossil species are distinct, showing that the old notion of a universal diffusion throughout the 'primeval seas' of one uniform specific fauna was quite unfounded, geographical provinces having evidently existed in the oldest as in the most modern times." The latter conclusion can, however, hardly be established until it has been found that the fauna of the Lower Laurentian rocks has a similar specific variety throughout the different parts of the globe. The possibility of identifying the contemporaneity of the Silurian strata in Europe and Australia by the fossils they contain, shows the universal spread, at that early period, of a fauna having the same general characteristics.

Nor is this parallelism of organic form limited to the earliest geological formations. The Rev. Samuel Haughton affirms† that "the characteristic fossils of the older rocks are more universally distributed than those of the modern rocks," and he adds, that "the doctrine of characteristic fossils, which it is so difficult to apply, and which appears so erroneous when we come to the later rocks, was absolutely and rigorously true of the older rocks. In the Silurian and Carboniferous, and even later in the Jurassic rocks, you will find the same fossils over larger tracts of country than you do in the

* Elements of Geology, 6th edit. p. 568. † Manual of Geology, p. 93.

chalk and tertiary rocks which follow them." The Devonian strata of North America contain fossil fish "characteristic generically or specifically" of the same European strata, and the same may be said of the Mollusca and Crinoidea. Sir Charles Lyell * states that the Devonian strata of South Africa are "strictly representative of those in northern regions, even to minute coincidences." The same similarity of form is observable also in the flora of the New and Old Worlds during this period. Nor is there less affinity between the floras of Europe and North America during the Carboniferous period,† four-fifths of the fossil plants collected in Nova Scotia having been identified with European species.

If we pass upwards through the Permian (the organic forms of which have a close analogy to those of the Carboniferous period) to the Trias, or New Red Sandstone group, although there may be a tendency to divergence of form, yet the strata of this series of rocks in different parts of the world contain fossils having a very near affinity. Some of the fossil ferns of North America are almost undistinguishable from those of Europe, and Professor Heer states ‡ that the flora of the Atlantic border of the United States has an affinity for that of the Upper Trias of Germany. As to the fauna of this period, there can be little doubt that the reptiles of Europe were similar to those of North America,§ and it is not improbable that the footsteps found in the Trias of the latter country may really belong to the *pterodactyle*, a flying reptile, whose fossil remains have been found in England.

* Elements of Geology, 6th edit., p. 542.
† Ibid. p. 493.
‡ Ibid. p. 449.
§ Ibid. p. 453.

There appears to be no representative in North America of the succeeding geological formations of the Lias and Oolite of Europe, but there are facts connected with the nature of the fauna and flora of the latter European period deserving of particular mention. During the period of the Trias formation, marsupials of a low grade had shown themselves in both Europe and America. In the Oolite of Europe, however, their fossils are so plentiful that Sir Charles Lyell says,* "If the three localities where the most ancient mammalia have been found—Purbeck, Stonesfield, and Stuttgardt—had belonged all of them to formations of the same age, we might well have imagined so limited an area to have been peopled exclusively with pouched quadrupeds, just as Australia now is, while other parts of the globe were inhabited by placentals, for Australia now supports 160 species of marsupials, while the rest of the continents and islands are tenanted by about 1700 species of mammalia, of which only forty-six are marsupial—namely, the opossums of North and South America. But the great difference of the age of the strata in each of these three localities seems to indicate the predominance throughout a vast lapse of time (from the era of the Upper Trias to that of the Purbeck beds) of a low grade of quadrupeds; and this persistency of similar generic and ordinal types in Europe while the species were changing, and while the fish, reptiles, and mollusca were undergoing vast modifications, would naturally lead us to suspect that there must have also have been a vast extension in space of the same marsupial forms

* Elements of Geology, 6th edit., p. 386.

during that portion of the secondary epoch which has been termed 'the age of reptiles.'"

The period when marsupials thus overspread the globe will form a fit starting-point for that comparison —between the organic forms now characteristic of the several great divisions of the earth's surface with those which have existed in past geological epochs—which is the best fitted to enable us to fix with some degree of accuracy the relative ages of continents. The resemblance between the Australian continent and Oolitic European which is one of the most striking results of geological research, is not confined to its non-placental mammalia. Professor Owen has pointed out * that "as the marsupial genera, to which the *Phascolotherium* is most nearly allied, are now confined to New South Wales and Van Diemen's Land, so also is it in the Australian seas that we find the *Cestracion*, a cartilaginous fish which has a bony palate, allied to those called *Acrodus* and *Strophodus* so common in the Oolitic and Lias. In the same Australian seas, also, near the shore, we find the living *Trigonia*, a genus of mollusca so frequently met with in the Stonesfield slate. So, also, the Araucarian pines are now abundant, together with ferns, in Australia and its islands, as they were in Europe in the Oolitic period. Endogens of the most perfect structure are met with in Oolitic rocks, as, for example, the *Podocarya* of Buckland, a fruit allied to the *Pandanus*, found in the Inferior Oolite." This comparison between Australia and Oolitic Europe is perfected when we find that organic forms similar to those described

* See Sir Charles Lyell's 'Elements of Geology,' 6th edit., p. 406.

appear always to have existed on the former continent. The fossils discovered in the Australian bone-caves, which answer to those of the European post-pliocene period, belong, although of extinct species, to the same marsupial forms which now distinguish the Australian fauna from that of other parts of the globe.

The deposits of the Cretaceous period, which succeeded the Oolitic, can be traced by their organic remains throughout Europe, and also in North America, where a large percentage of the fossils of the chalk formations agree, either specifically or generically, with those of Europe. In South America and India, strata of this formation have been found containing characteristic shells. "Taken in connection," says Professor E. Forbes,* "with those from the United States, they prove that those powerful causes which stamped a peculiar character on the forms of marine animal life at this period, exerted their full intensity through the Indian, European, and American seas. Here, as in North and South America, the cretaceous character can be recognized, even where there is no specific identity in the fossils; and the same may be said of the organic type of those rocks in Europe and India which occur next to the chalk in the ascending and descending order—namely, the Eocene and Oolitic."

One of the most characteristic fossils found in the Eocene deposits consists of the *Nummulites*, the formation containing which holds a most conspicuous place in the earth's crust. This formation is found many thousands of feet in thickness throughout Europe,

* See Sir Charles Lyell's 'Elements of Geology,' 6th edit. p. 837.

North Africa, and Asia, as far as the confines of China. Although the Eocene deposits of North America appear to be distinguished by fossil foraminifera rather than by nummulites, it contains shells identical or nearly allied with those of the European Eocene, and its characteristic *Orbitoides* (foraminifera) is probably of the same species as one found in the nummulitic formation of India. Sir Charles Lyell says that in the North American Eocene are also found numerous corals, and the remains of placoid fish and rays,* and the 'swords' of sword-fishes, "all bearing a great generic likeness to those of the Eocene strata of England and France." The flora of the Middle Eocene formations of Europe appears to have had a great resemblance to that of tropical India and Australia at the present day, while the peculiar types of the European Miocene and present American flora are absent. Throughout the whole of the Eocene period the European fauna was characterized by the genus *Paleothere*, which "resembled the living tapir in the form of the head, and in having a short proboscis, but its molar teeth were more like that of the rhinoceros." It was associated† during the later Eocene period with several other genera of Pachydermata, besides alligators, snakes, and other large reptiles, and, among fishes, the genus *Lepidosteus*, or bony pike of the American rivers. In the Paris gypsum have been discovered the remains of a squirrel, a bat, and an opossum, and also the footprints of crocodiles, iguanas, geckos, and batrachians, and of a wading bird much

* See Sir Charles Lyell's 'Elements of Geology,' 6th edit., p. 307.

† Ibid.

larger than the ostrich. In the lower Eocene formations have been found a species of *Hyracotherium*, belonging to the hog-tribe, and allied to the hyrax of South America, together with other pachyderms, and upwards of fifty species of fish indicating a warm climate, —among them the ray, the shark, the sword-fish, and the saw-fish. The Cephalopoda are represented by six extinct species of *Nautilus*. Professor Owen says,* "In carrying back the retrospective comparison of existing and extinct mammals with those of the Eocene and Oolitic strata, in relation to their local distribution, we obtain indications of extensive changes in the relative position of sea and land during those epochs, in the degree of incongruity between the generic forms of the mammalia which then existed in Europe, and any that actually exist on the great natural continent of which Europe now forms part. It would seem, indeed, that the further we penetrate into time for the recovery of extinct mammalia, the further we must go into space to find their existing analogues." It is to the South American continent—as to the fossil mammalia of which Professor Owen declares† that they are "as distinct from the Europeo-Asiatic forms as they are closely allied to the peculiarly South American existing genera"—we must look for the nearest approach to the fauna of Eocene Europe. We have evidence of this in the tapir, of which South America possesses two species, and the hyrax, and also among marsupials, in its opossum, which is the only non-placental mammal discovered in the European Eocene deposits. South America is,

* Palæontology, p. 397. † Ibid. p. 388.

moreover, distinguished by its great variety of reptiles, while its ostrich recalls the great bird of the Paris gypsum, and its seas abound with sharks, rays, and other fishes representative of the early European Tertiary epoch.

The mammalia of the *Miocene*, or Middle Tertiary period, partook of the general character of that which preceded it. The pachyderms were still numerous, and among them first appeared the *Dinotherium*, *Rhinoceros*, *Mastodon*, *Elephant*, and *Hippopotamus*. One of the most marked characteristics of the European Miocene is the first certain appearance of the ape, and in its upper deposits are also found remains of the giraffe and antelope. The European fauna of this period, although it was allied, especially by its pachyderms and testacea, to the Miocene of North America, had much greater resemblance to that which now distinguishes the African continent. Most of the above-mentioned genera are still found there, while the giraffe and hippopotamus, whose remains have been found in some of the latest of the sub-Himalayan deposits, are now extinct everywhere but in Africa, and the antelope is almost peculiar to the existing fauna of that continent. Perhaps the most curious phenomenon presented by the European Miocene is the great resemblance of its flora to that now found on the eastern side of the North American continent. This affinity of form is so great that it has given rise to the idea of the existence, during the Miocene period, of a continuous stretch of land between Europe and America. Sir Charles Lyell says,* in relation to the affinity

* Elements of Geology, 6th edit. p. 266.

of the Miocene flora with that now found in different parts of the world, "If we consider not simply a mere list of species, but those plants which would constitute the mass of the vegetation, the European part of the fossil flora is thrown still more in the background, and the foreground is occupied by America with its numerous evergeen oaks, maples, poplars, planes, Liquidambar, Robinia, Sequoia, Taxodium, and ternate-leaved pines, and Japan with its many camphor-trees and Grypto-strobus, the Atlantic islands with their laurels, and Asia Minor with its Planera and *Populus mutabilis*. During the Miocene period in Europe, there was a singular co-existence of generic types of plants which are now peculiar to America, or to Asia, or to Africa, or Australia; in a word, to portions of the globe extremely distant from each other. This fusion of the characters now belonging to distinct colonial provinces becomes more marked as we go back to the Lower Miocene formations, and will be found to be still more strikingly exemplified in the antecedent Eocene and cretaceous periods." A similar analogy is observable between the fossil shells and corals of the European Miocene and species which still inhabit the American seas, and Sir Charles Lyell asserts * that the conclusions drawn from the insects are for the most part in perfect harmony with those derived from the plants, although they have a somewhat less tropical and less American aspect.

During the *Pliocene*, or later Tertiary period, although certain genera of the Miocene mammalia appear to have been lost, others, as the mastodon, the hippopotamus,

* Elements of Geology, 6th edit. p. 254.

the elephant, and the rhinoceros, are still met with in its European deposits. Contemporaneous with them were the horse, bear, wolf, tiger, and hyena, and generally, at least in the early Pliocene, such a fauna as we now see in the warmer portions of the Asiatic continent. The flora of the earlier Pliocene had much in common with the preceding geological period, and many of its generic forms still survive in the south of Europe. That of the later Pliocene was apparently not so rich in specific forms, although it approached more nearly to the present European flora.

Notwithstanding the severity of climate which characterized the Glacial epoch in the northern hemisphere, most of the later Tertiary European mammalia survived it, and many of them appear to have lived in England even after its close. Among them were found the hippopotamus, the rhinoceros, the mammoth, the horse, the lion, and the hyena; and nearly all the post-Pliocene quadrupeds* "have now been met with either in valley drifts or cave deposits, in England or on the Continent, accompanying flint knives or hatchets, in such a way as to imply the co-existence of the same mammalia with man." With the close of the post-Pliocene period, most of the older fauna disappeared from Europe, giving place to that which now distinguishes it—the deer, the wild boar, the wild ox, and other animals whose bones are found associated with relics of man in the lake-dwellings and shell-mounds of the recent period. The European flora did not undergo so great a change during the Glacial period, if we may judge from the plants preserved

* Sir Charles Lyell's 'Elements of Geology,' 6th edit. p. 131.

in the forest bed of Cromer which preceded "the submergence of the British Isles beneath the waters of the glacial sea," they being such as now exist in Europe, and nearly all of them even indigenous to Great Britain.

That a comparison of the fauna and flora now inhabiting the several great divisions of the earth's surface with those which existed at a past epoch in the world's history must give us some knowledge of their relative ages is evident when the causes are considered which lead to such changes as those that have taken place in the distribution of organic forms. The immediate cause is doubtless generally a change of climate, by which a country becomes unfitted for the existence of its primitive fauna or flora, and, of course, the oftener this change takes place, and the more extreme it is in character, the greater will be the variation in the animal and vegetable forms which will ultimately inhabit the district affected. The primary cause, however, of the alteration in the fauna and flora of a continent must be that on which change of climate itself depends—the alteration in the condition of some portion of the earth's surface. The movements of the earth's crust lead to changes of climate which affect the character of the prevailing organic forms, — a result which is, therefore, in itself evidence of such movements. It is true that a change of climatic conditions may take place in a particular district, without being preceded by any *local* disturbance of the earth's crust. As Sir Charles Lyell says,* "The communication of heat and cold between different parts of the

* Elements of Geology, p. 114.

atmosphere and ocean is so free and rapid, that the temperature of certain zones cannot be materially raised or lowered without others being immediately affected; and the elevation or diminution in height of an important chain of mountains, or the submergence of a wide tract of land, would modify the climate even of the antipodes." So great is this sympathetic influence that, according to the same writer, "long before the geography of any particular district can be essentially altered, the flora and fauna throughout the world will have been materially modified by countless disturbances in the mutual relation of the various members of the organic creation to each other." It is evident, however, that another conclusion may be drawn from this argument. For, if we find that the animal and vegetable forms which characterize a particular continent have remained comparatively unaltered throughout a vast geological period, it is proof that the continent itself has not undergone any great local change during that period, or at all events not such as to essentially alter its chief physical characters.

The conclusion which must be arrived at as to the relative ages of the several great divisions of the earth's surface, judging from the present distribution of its fauna and flora, is apparent. The animal forms which are found on the Australian continent are still the same as those which had so universal a range during the Oolitic period, while its vegetable organisms, although probably of a later type, are representative of so distant a period as the European Eocene. Australia must, therefore, on this ground be described as the oldest of the great continents. Nor is this conclusion contra-

dicted by its geological formation. In 1850, Mr. Jukes wrote,* "Above the Palæozoic series there is an absolute gap, a total deficiency of all other stratified rocks whatsoever, so far as at present known, excepting those belonging to a tertiary formation, which, from the very recent aspect of its fossils and their resemblance to existing forms, I believe to be a very modern one." Later researches have, indeed, somewhat qualified this view, and the Rev. Julian Woods, judging from the widespread distribution of the ferruginous gravel beds, and the strong Philippine affinities of its fossils, states† that "we may infer that the whole continent of Australia was then submerged, leaving a clear sea to the equator." There is, however, great doubt as to the age of the ferruginous gravel, and the present existence of the special Australian fauna is in itself proof that the whole of that continent cannot have been submerged since the Secondary period. Probably Australia partook of that movement during the Miocene, or later Tertiary period, which has left its mark in the Tertiary deposits of South America, and of the littorals of South Africa; but, taken as a whole, it is without doubt the oldest of the great divisions of the earth's surface. A writer already cited, declares ‡ that Australia must be regarded as "a country in its senility, which from time immemorial has retained its character unchanged," and he gives reasons for believing that "the country has done playing its part, and must now prepare for vast changes."

* Sketch of the Physical Structure of Australia, p. 89.

† Proceedings of the Geological Society for 1865, p. 392.

‡ Dr. Seemann, 'Popular Science Review,' 1866, p. 25.

Judging from the analogy between the present fauna and flora of the South American continent and that which prevailed in Europe during the early Tertiary period, the southern part of the American continent must be classed in age next to Australia, even if it may not claim an equal antiquity. It is true that South America has undergone certain partial changes since the Secondary period; but certain of its Tertiary deposits, as the Guaranian and Patagonian series, are referred by D'Orbigny to so early a date as the European Eocene. It is true that the Pampas clay formation appears to be of a more recent origin, and probably the period of its deposition witnessed the elevation of the great mountain-chain of the Andes. However important these changes may have been, they were yet limited in their influence, and the geological age ascribed to the South American continent is, moreover, justified by its possession of a mammalian type so primitive as the Edentata, which is almost special to itself, and of which it has apparently been the home from the very commencement of the Tertiary period.

The next place in age, if we may judge from the agreement of its flora and some portion of its animal forms with those of Miocene Europe, must be ascribed to North America. Professor Rogers says that this continent presents but few traces of any important convulsive movement during the whole Secondary and Tertiary periods. North America was, however, affected not only by the great movements which accompanied the elevation of the Andes, but still later, in common with the whole of the northern hemisphere, by the

series of upheavals and depressions of the Glacial period. It has been said that the range of mountains which runs from the Arctic to Cape Horn shows a similarity of structure between the northern and southern parts of the American continent which extends in a great degree to their fauna and flora. This is true, but it is undoubted that the organic forms of the northern part of the continent have a more recent type than those of the south, due in great measure, so far as its fauna is concerned, to the change in climate which marked the Glacial period, and to the development and spread of new mammalian forms by which it was accompanied.

That the African continent cannot have undergone any serious change of climate for a vast period of time is evident from the agreement of its present fauna with that of the later tertiaries of Europe, an agreement which authorizes us to place it the next in point of age to the American continent. This conclusion, however, is not applicable to the whole of the African continent. Geologists assert that the interior of South Africa has remained for countless ages in the same state as during the Secondary period. "It is true," says Sir Roderick Murchison,* "that there are marine tertiary formations on the coasts and that these have been raised up into low coast ranges, followed by rocks of igneous origin. But in penetrating into the true interior the traveller takes a final leave of all such formations; and in advancing to the heart of the continent, he traverses a vast region which to all appearance has ever been under terrestrial and lacustrine conditions only." North of

* Address delivered before the Royal Geological Society in 1864.

the equator, however, great alterations in the physical geography of the African continent have taken place at a comparatively recent date. Sir Charles Lyell has pointed out that the nummulitic formation of the Middle Eocene period is very prominent in the geological structure of North Africa, and he consequently refers "some of the greatest revolutions in the physical geography" of that part of the continent to a period subsequent to the formation of the nummulitic deposits.* Geologists, indeed, believe that the great Sahara desert was covered by the waters of the Atlantic at the commencement of the Glacial period. We know too little of the geological formation of the country between the Sahara and the equator, to say whether the elevation of the mountain range which appears to stretch from east to west across the entire continent not far from the equator is referable to an earlier epoch, but probably it was not later than the date of the elevation of the Atlas Mountains. It is in that portion of the African continent, which lies between the Sahara and the great southern region to which so high a geological antiquity has been assigned, we must seek the chief seat of the negro or true African race.

The present geographical configuration of the Asiatic continent appears to have had a still more recent origin. The Sewalik Hills of Northern India are a Miocene range, but the fauna of this period, which included the giraffe, now found only in Africa, gave place to that of the Nerbudda or Doad alluvium, which is of a more recent type. This alluvium contains the fossil remains

* Elements of Geology, 6th edit. p. 306.

of the hippopotamus, another animal now restricted to the African continent. The elevation of the Himalayan range is probably referable to the same period as that of the most recent changes in the physical geography of Northern Africa, but much of the great central plateau of Asia appears to have had an origin equally if not still more recent. Northern Asia was, moreover, seriously affected by the series of movements which distinguished the Glacial epoch of the northern hemisphere. The Asiatic fauna of the Tertiary period may be said to be now restricted to the southern part of the continent, on which, according to Dr. Falconer,* "the present physical order of things, modified only by alternations of level by upheavements and depressions, can be traced back in an unbroken chain to the ossiferous strata of the valley of the Nerbudda and of the Sewalik Hills."

The change which the fauna of Europe has undergone since the Tertiary period shows that the physical geography of the European continent must also since then have been almost completely altered in character. The glacial seas covered nearly the whole of northern Europe, and its mountain ranges were the seat of gigantic glaciers. Mr. Page says,† "At the close of the Pleistocene period, the present distribution of sea and land seems to have been established—at least in the northern hemisphere,—the land presenting the same surface configuration, and the sea the same coast-line; with the exception of such modifications as have since been produced by atmospheric, aqueous, and other obvious

* Proceedings of the Geological Society for 1865.

† Handbook of Geological Terms, p. 369.

causes." This statement is true more especially of the European continent, the climate of which appears to have been completely changed as the result of the geological movements of the Glacial epoch. Europe, therefore, may without hesitation be declared to be the youngest of the great continental divisions of the earth's surface.

The conclusion here arrived at with reference to the relative ages of continents, drawn from a comparison of their several faunas and floras with those of past geological epochs, is confirmed by a reference to the fossil remains found in their several Tertiary deposits. Professor Owen has pointed out* that there is a close correspondence between the present fauna of the "Europeo-Asiatic expanse of dry land" and the fossil mammals of its later Tertiary deposits, and he thinks that the three continuous continental divisions of the "old world" should be regarded "as forming, in respect to the geographical distribution of Pliocene, post-Pliocene, and recent mammalian genera, one great natural province." As to South America, Professor Owen declares that the fossil mammalia from the bone caves and recent Tertiary deposits of that continent† "are as distinct from the Europeo-Asiatic forms as they are closely allied to the peculiarly South American existing genera of mammalia." A similar correspondence is observable between the present mammalian fauna of the Australian continent and the fossil remains which have been found in its caves and recent Tertiary deposits. Sir Charles Lyell, after referring to this correspondence between

* Palæontology, p. 387. † Ibid. p. 388.

living and extinct forms, says,* "This fact is one of many pointing to a general law deducible from the fossil vertebrate and invertebrate animals of times immediately antecedent to our own, namely, that the past geographical distribution of organic *forms* dates back to a period anterior to the origin of existing *species;* in other words, the limitation of particular genera or formations of quadrupeds, mollusca, etc., to certain existing provinces of land and sea, began before the larger part of the species now contemporary with man had been introduced into the earth." This is true, but the further we go back in geological time the less restricted do we find the distribution of organic forms to have been. The contraction of the area over which primitive forms have survived, and the introduction of fresh forms in their stead, can be accounted for only by supposing great physical changes to have taken place in certain localities; while the continued existence of primitive forms proves that the physical conditions under which they first appeared have altered but little in the localities where they are yet found. It cannot be said that Australia and South America, having been for a vast period cut off from connection with the so-called "old world," must necessarily have perpetuated the older fauna and flora, whatever geological changes those continents may have undergone. For, there is no apparent reason why the northern hemisphere should alone be able to originate new organic forms; and the fact of the southern continents not having done so, is proof that the conditions of nature, essential to such an origination, have

* Elements of Geology, 6th edit. p. 127.

never existed on them. Some change, certainly, has taken place in the fauna of the southern hemisphere since the Tertiary period, but it is comparatively slight, and probably more remarkable in relation to size than to form. During the Mastozoic age, towards the close of the Tertiary period, the marsupials of Australia, and the edentata of South America, attained to a gigantic size, rivalling, if not eclipsing, even the mastodon of North America and the mammoth of Europe.

A curious analogy is observable between the apparently arrested development of the physical and mental organizations of the aboriginal human inhabitants of the southern hemisphere and the character of its fauna and flora. It can hardly be doubted that the explanation of the apparent inability to attain to organic perfection which they all alike exhibit must be sought for at the hands of geology. Probably it will be found that the elevation of the northern hemisphere, which appears to have gradually taken place throughout a great part of the Tertiary period, was accompanied by a correlative depression in the southern hemisphere, resulting in the perpetuation of conditions of existence quite unfitted for the full development of organic life. However this may be, if we compare the several great families of mankind with the continents they inhabit, we shall find a strict agreement between the age of the one and the condition of the other. The Australian continent —which in its present geological formation is of the greatest antiquity—and its aboriginal inhabitants are equally effete. The latter are gradually, but surely, disappearing from before the face of the European, and

the continent itself is as certainly tending towards a state of dissolution. Dr. Seemann says of the native Australian population,* that it is "a race unfitted for civilization, and so near the brute creation that it might be appropriately classed with it, if it was not for its power of language and the only ingenious thing in its possession—the boomerang." The same writer says of the continent itself that "the entire condition of the country, the desert-like character of the interior, the great number of salt-lakes, the rivers terminating in swamps, etc., indicate an approaching geological change, which, however, may not take place for some thousands of years."

On the American continent we find primitive peoples who are hardly less degraded than the aborigines of Australia. In the south are the *Fuegians*, the *Botocudos*, the *Puris*, and other equally barbarous peoples, whilst even in the north we find the *Yamparicos*, who are said to speak "a sort of gibberish like the growling of a dog," and whose habits are as debased as those of the Bosjesmans of South Africa. It is true that the Indians of North America are physically and intellectually superior to the Fuegians and other degraded peoples of the south. That they occupy a lower place in the scale of humanity than the negro, however, is evident from their savage nature, and from the persistency of their incapacity for civilization. The extinct peoples of Mexico and Peru do, indeed, appear to have reached a state of civilization such as the negro can never hope to attain to without external aid. It must be remembered, however,

* The Popular Science Review, 1866, p. 27.

that these extinct races inhabited that portion of the American continent which was affected by one of the latest of the great movements which the earth's surface has witnessed. The change in the formation of the western side of the American continent thus effected, gave rise to geographical conditions much more favourable for the development of civilization than those which the negro has hitherto enjoyed. Notwithstanding the high degree of civilization attained to by the Mexicans and Peruvians, it may be doubted whether their physical or intellectual organization retained, when they first became known to Europeans, so much of its original plasticity as that which the negro now possesses.

It is in the *capacity* for civilization, rather than by its actual development, the negro shows his superiority over the Australian and American aboriginal races. Not that the evidences of civilization are wholly wanting. Many African peoples exhibit great ingenuity in the manufacture of various useful articles. Some of them are noted for their skill in working iron, while others excel in the weaving of cloth. All of them have a great fondness for music, few being without some kind of musical instrument of their own invention. The Caffres, and kindred tribes, although still *nomades*, have got beyond the primitive hunting stage of man's existence, and are chiefly occupied in the care and rearing of cattle, while some negro communities devote themselves to agriculture. It is true that nearly all the African tribes appear to be still sunk in the grossest ignorance, and to be the creatures of the most absurd superstitions, under the influence of which they too often exhibit great cruelty.

The most degraded of them, however, have redeeming features, and the spread of Mohammedanism among the northern tribes, and the desire for "trade," which has become so distinguishing a trait of the negro character, are evidences of an impressionableness which argues well for the future of the African race.

Agreeing with the geological antiquity assigned to the Asiatic continent, we find that its aboriginal peoples not only have a physical organization superior to that of the African race, but that they show in the civilization to which many of them have attained the exercise of an intellectual activity much greater than is displayed by any of the aboriginal peoples of either Africa or America. Of the Asiatics, however, it must be said that, although they may be able to originate a civilization, they have not as yet shown a capacity for its indefinite development. We see the proof of this in the barbaric and transient splendour of the Mongolic Empires of Central Asia, and even in the ancient civilizations of China and Japan, which for centuries have apparently ceased to make any further progress. Even the Aryan civilization of India has not escaped the deadening influence of physical conditions of nature unfitted for a full development of the powers of the human intellect.

Of Europe must it be affirmed not only that its present geographical configuration furnishes evidence of its having undergone more recent geological change than any other continent, but that its inhabitants have a physical organization and intellectual activity relatively superior to those of any other race. It is necessary to

remember, however, when judging of the relation between the age of a continent and the civilization exhibited by its aboriginal inhabitants, that the continents of the "old world" must not be limited according to their present conventional boundaries. For instance, M. Guyot—who is followed by M. Agassiz—has shown clearly that the geographical area of Europe must be taken to include Iran and Asia Minor, Mesopotamia, northern Arabia, and Barbary, as well as Europe proper. Asia must, therefore, be limited to the countries included in the Asiatic realm of Agassiz.

If the relation sought to be established between the age of a continent and the physical and mental condition of its aboriginal inhabitants really exists, we can well understand why the native Australians can be placed only in the lowest scale of humanity. Living on the oldest of the great continents, and in the locality the least fitted for the development of civilization,* no wonder that they are almost utterly devoid of it. It is, however, not the mere want of, but the apparent *incapacity* for, civilization, which has to be explained, and this can be done only by supposing the aboriginal inhabitants of Australia to have continued for a very great length of time under the influence of conditions of soil and climate totally unfitted for intellectual progress. If these conditions had been improved at an early stage of the race existence, probably the civilization, whose germs can just be traced, would have been further developed. No such change having taken place, however, the physical structure, and consequently the mental faculties,

* See Dr. Seemann in 'Popular Science Review,' 1866, p. 27.

have become so fixed in their degradation, that it is impossible for them to regain their original capacity. On the American continent the same phenomenon presents itself, although there the arrest of mental development has not occurred at so early a stage of the race existence. The physical conditions presented by the American continent,* although far from fitted "to give birth and growth to a new civilization," yet, being superior to those operating in Australia, its inhabitants were enabled to attain to a higher degree of physical and intellectual progress. This progress was, however, finally arrested at a point beyond which the secondary conditions of soil and climate could not carry it. The rise of the Mexican and Peruvian civilizations shows, nevertheless, that, before the degradation of the aboriginal inhabitants of the American continent had become fixed, they were capable of a higher phase of intellectual culture than that which they now exhibit. The African race also shows the phenomenon of arrested physical and mental development. Located originally under conditions but little favourable for civilization, the negro has continued so long under their influence that he appears to have almost lost the capacity for its production. Having been thus affected, however, for a shorter period than the aboriginal inhabitants of the Australian and American continents, his organization has retained somewhat of its original plasticity; and while contact with the European, appears with the older races to result in their extinction, it seems in

* See the 1st vol. of Mr. Buckle's 'Introduction to the History of Civilization.'

the case of the negro to give a renewed vitality to the whole nature, and to result in an improvement of the intellectual, if not also in the physical organization.

Of the two remaining great races of mankind, the Asiatic, or Turanian, shows the effect of long-continued existence under physical conditions not adapted for the full development of civilization,* in an intellectual activity, inferior to that of the European. This intellectual culture is superior, however, not only to that of the negro, but also to that exhibited by the extinct peoples of Mexico and Peru, and yet, like them, it has been arrested at a certain stage beyond which it appears to be incapable of advancing. It is only in the European or Caucasian race, which has existed but a comparatively short time in the history of the world, that we see a capacity for an indefinite intellectual progress. The example of the Hindu Aryans shows us, however, that even the most favoured race is subject to the influence of conditions of nature unfavourable to civilization. Although Hindu civilization is of a purely Aryan type, and more intellectual than that of China, it yet appears to be incapable of overcoming that unfavourable influence, and its arrested progress must, therefore, be permanent, unless it be acted on by the younger and more vigorous civilizations of the European branch of the great Aryan stock.

That the two lowest races of mankind—the Australian and American—do exhibit the phenomenon of a permanent arrest of mental development, evidenced by their incapacity to receive the civilization of a higher

* See M. Guyot's 'Comparative Physical Geography,' ch. ii.

race, appears to be undeniable. It is no less true that the African and Turanian races exhibit a phenomenon of the same character, although in their case not so strongly marked. The existence of this peculiarity, however, furnishes no ground for asserting that the intellectual faculties of the European are in any way different from those of an inferior race. The arrested development is the result, not of any original incapacity for intellectual progress, but merely of the long *persistence* of conditions of existence unfavourable to the development of civilization. The explanation given in the preceding pages of the nature of the mental faculties, furnishes sufficient proof that any present intellectual incapacity exhibited by the inferior races of mankind, must be referred, not to those faculties themselves, but to the external conditions under which they operate; the most immediate and important being that of the physical organism to which the mind is united, and through the medium of which it shows its activity. Present incapacity is no proof of *primitive* inferiority. The most civilized races of mankind were apparently at one time in a state of barbarism; and if we could trace the intellectual progress of every people to its beginning, we should doubtless find that all were originally at an equally low level.

CHAPTER V.

THE ANTIQUITY OF MAN.

SUPPOSING all peoples to have had a common origin, the period that has elapsed since the radiation from the birthplace of man began must be so great as to render the calculation of it a hopeless task. The vast antiquity of the present geographical configuration of the older continents, and the degradation of their aboriginal human inhabitants which that antiquity alone would seem to account for, may well lead us to suppose that Australia at least has been inhabited from the commencement of the Tertiary period. This may be thought rather too bold a speculation, but it is the conclusion towards which the researches of geologists are inevitably tending. It is true that Sir Charles Lyell, while anticipating that we may some day find the remains of man in deposits of the Pliocene period, says,* "We cannot expect to meet with human bones in the

* Geological Evidences of the Antiquity of Man, 2nd edition, p. 399.

Miocene formations, where all the species and nearly all the genera of Mammalia belong to types widely differing from those now living." Sir John Lubbock, however, is not of this opinion. He says * that "if man constitutes a separate family of Mammalia, as he does in the opinion of the highest authorities, then according to all paleontological analogies he must have had representatives in Miocene times." An American writer on Anthropology some years since expressed a still stronger opinion as to the antiquity of the human race. After referring to the fossil relics of man which have been discovered in different parts of the North American continent, he added,† "I have no doubt that man will yet be found in the fossil state as low down as the Eocene deposits, and that he walked the earth with the Megalonyx and Palæotherium. His not having been hitherto discovered in the older stratified rocks is no proof that he will not be hereafter found in them. Ten years ago the monkey tribes were unknown and denied in the fossil state, but they have since been identified in the Himalaya Mountains, Brazil, and England." Since this was written, a fragment of a jaw with three molar teeth,‡ which M. Rühmeyer supposes to be that of a monkey, has been found in the Upper Eocene strata of the Swiss Jura, and we may hope that relics of man equally old will yet be discovered. The scarcity of fossil bones of the Quadrumana, however, furnishes a reason why we must not be surprised if human remains of so distant a date

* Pre-historic Times, p. 334.

† 'Types of Man,' by Nott and Gliddon, p. 326.

‡ See Sir Charles Lyell's 'Elements of Geology,' 6th edition, p. 292.

should not be met with. But, as Sir Charles Lyell affirms,* we know nothing of the Tertiary fauna of the tropical regions of Africa and the islands of Borneo and Sumatra—the countries of the anthropomorphous apes—where we may expect primitive man to have had his dwelling-place.

Notwithstanding the absence of positive evidence, we are yet not without grounds for inferring, with a strong degree of probability of its truth, that man existed on the globe at a date as early as any yet supposed for his first appearance. There is little doubt that at the commencement of the Tertiary era the climate at most parts of the earth's surface was as well fitted for man's existence as that now found within the tropics, so that there appears to be no *primâ facie* reason why man's first appearance should not have taken place at that early period. There are, moreover, certain phenomena connected with the distribution of the human race in the southern hemisphere which would lead us to suppose that the earth was inhabited before the southern continents had attained their present geographical configuration. The fact of the most degraded peoples of Asia, Africa, and America being found at the lowest extremities of those continents has often been referred to, and it has been explained on the supposition that these peoples have been gradually forced into their present positions by the pressure of superior races from the north. This explanation is, however, far from satisfactory, and it is utterly insufficient as a solution of the difficulties arising from the presence, in localities separated by thousands of

* 'Elements of Geology,' 6th edition, p. 499.

miles of ocean, of peoples apparently belonging to the same stock. The migrations of the Bechuana tribes *may* posssibly account for the presence of the Hottentots at the southern extremity of the African continent; but such an explanation cannot possibly be given of the fact that the Sechuana has an affinity for the language of peoples living in the Pacific Ocean. Again, the curious points of resemblance between the Hottentots and the ancient inhabitants of Egypt may perhaps be accounted for by the supposition that the former originated in Ethiopia; but a similar explanation can hardly be given of the connection which has been discovered between the Coptic and several of the American dialects.

It is impossible, within the limits which this work will allow, to give any detailed description of the various dark races who are found scattered over the African continent, and generally throughout the southern hemisphere. It is now pretty well known that all the peoples of Africa south of the great desert partake more or less of the dark skin and woolly hair of the negro. Some of these peoples are, however, by various writers excluded from the great negro family on account of characteristics supposed to be peculiar to themselves. Thus, Casalis has no difficulty in deriving the Bechuanas from a Semitic source, and in support of his opinion he cites not only customs, but also various Sechuana words which he identifies with words having a similar signification in Hebrew.* There appears to be little doubt that this important South African family, which comprises the Cafres, the Basutos, and the Bakalahari, has occupied

* 'Les Bassoutos,' p. 333.

its present position for a *comparatively* short period. Its original seat is, however, yet unknown, and that it has really been located south of the Zambesi for a very long period is evident from the condition of the Bakalahari,* who appear to be the oldest of the Bechuana tribes, and who now lead a miserable life in the Kalahari desert, into which they have been driven by later migrations of kindred tribes.

Sutherland, who thought that the Cafres have a stronger resemblance to the Ethiopians and Abyssinians than to the negro, says† that "the mountains and rivers still retaining their Hottentot names is presumptive proof that the Cafres were intruders on that nation." It is curious that, as the Cafres are supposed to approach the Europeans in their physical features, the Hottentots are said to resemble certain Asiatic peoples—according to Burrow‡ the Chinese, and according to other writers the Kalmuks. The same remark applies to the Bushmen, or Bosjesmans, who bear the same relation to the Hottentots as the Bakalahari have to the other members of the Bechuana family. The most remarkable fact in connection with the Hottentots, however, is the relation found to subsist between their language and the Coptic, which has led Dr. Bleek to affirm§ that "all those sex-denoting languages which were then known to us in Africa, Asia, and Europe, are members of one large family, of which the primitive type has, in most respects,

* 'Missionary Travels' by Dr. Livingstone, p. 49.

† Memoir on the Kaffirs, etc., of South Africa, p. 73.

‡ Dr. Prichard's 'Physical History of Mankind,' vol. i. pp. 272, 313.

§ Reynard the Fox in South Africa, preface, p. 18.

been best preserved to us in the Hottentot language." This fact, taken in connection with "the great ethnological difference between the Hottentots and the black races of South Africa," induces Dr. Bleek to believe the former to have had an Ethiopian origin.

These are not, however, the only African peoples whose aboriginal origin is doubted. In the highlands of Senegambia, and in the valleys of the Senegal and Niger, a race exists whose appearance distinguishes them from the negro peoples, in the neighbourhood of whom they dwell. These are the Poules, *Foulahs*, or Fellatahs, who are described by Gustave D'Eichthal * as having "une couleur de peau foncée, que les voyageurs appellent tantôt *rouge*, tantôt *bronzée*, tantôt *cuivrée*, quelquefois presque *blanche*, la figure ovale, le nez aquilin, les cheveux lisses, les extrémités des membres petites." The *Foulahs* are distinguished from the black tribes as well by their occupation as by their appearance. While the latter lead a settled and agricultural life, the former are nomades occupied in the care and rearing of cattle. So striking is the contrast between these peoples that an origin has been sought for the Foulahs in Eastern Africa. Mollien identifies them with the Barabras of Nubia, whom he declares they resemble both in appearance and customs. D'Eichthal says that the test of language does not support this opinion, but that it is different with the *Fouraoui*, or inhabitants of Dar-Four,† whose language contains a certain number of words found also in the Foulah tongue. D'Eichthal says ‡ that "un peu au-dessus de Shendy,

* Mémoires de la Société Ethnologique (Paris), vol. i. part ii. p. 1.

† Ibid. p. 64. ‡ Ibid. p. 65.

sur la limite du Sennaar et de la Nubie, vers l'extrémité du territoire de Méroé, et à 5 degrés est du Dar-Four, on trouve deux endroits appelés l'un *Gherri* sur le Nil, et l'autre *Naga*, deux mots foulahs qui signifient *ville* et *bœuf*." These appear to be the most easterly points to which the Foulahs have penetrated, and if they are the people referred to by the author of Genesis under the name of *Phut*, these names perhaps mark their earliest seat on the African continent. It is singular that several kingdoms founded by the Mussulman Fellatahs in the region of Senegambia are called *Foula* (*e. g.* Foula-Toro, Foula-Bondon, and Foula-Djallon). It is not impossible even that, as the writer from whom these particulars are taken suggests, this people have given their name to the Fellahs of Egypt, and that they were the founders of the civilization of Méroé, celebrated in Egyptian annals.

The Foulahs, according to Mungo Park, consider the negroes as their inferiors, and claim for themselves a *white* origin. This curious tradition appears to be held by other African peoples—as the Kroomen of Sierra Leone, and the Gallas to the south of Abyssinia. Whatever this belief may have sprung from, it is undoubted that the language of the Foulahs has certain affinity with the dialects of the Malayan archipelago. D'Eichthal declares * that the verbal coincidences which he points out † "établissent d'une manière incontestable une affinité, quant aux radicaux, de la langue foulah avec les langues malaisiennes." This affinity, which appears to be the most striking between the Foulah and the dia-

* Mémoires de la Société Ethnologique (Paris), vol. i. part ii. p. 107.

† Ibid. p. 250 *et seq.*

lects of Java, extends to the system of numeration, the elements of which are the same in each, although their combination differs.* This comparison between the Foulah and the Malayan dialects furnishes a very plausible explanation of the origin of the tradition above referred to. In the dialect of Rotti, in the Indian Archipelago, *foulah* means white, and the same word is found in Malagasy as *fouleh*, and in the Malay and Javanese as *pouleh*.† Doubtless this name was taken by the Foulahs to distinguish them from the darker peoples by whom they found themselves surrounded.

D'Eichthal gives several Foulah words which are found both in Malagasy and in the Polynesian dialects, and others which are met with in Malagasy alone. He adds, ‡ "pour tous, la forme madécasse est bien plus rapprochée du foulah que la racine primitive; c'est donc au madécasse que l'emprunt a dû être fait." Another mark of agreement between the Foulahs and the Madecasses is their pastoral character. This is a peculiarity which distinguishes most of the non-negro tribes of central and eastern Africa. As to the Madecasses, Froberville says, § "Tuer un bœuf est un privilége réservé à la classe noble. Enfin, excepté l'Inde, où le bœuf est un objet d'adoration, il n'est point de contrée où cet animal soit plus en honneur qu'à Madagascar." It is curious that the cattle possessed by all these pastoral tribes belong to the same species as the Indian Zebu,

* Evidence of this, and of other lingual affinities to be referred to, will be found in the tables inserted in the Appendix at the end of this volume.

† Mémoires de la Société Ethnologique (Paris), vol. i. part ii. p. 119.

‡ Ibid. p. 114. § Ibid. p. 136.

and its presence both in Madagascar and on the African mainland may be taken as a proof that at some period or other there has been a more intimate connection between them and the peoples who inhabit them than now subsists.

It may be thought that the light-complexioned Foulahs and the dark-skinned Cafres cannot have any relation. There appears, however, to be great probability that they have sprung from the same source. Dr. Prichard * relates that Mr. Lander was so struck with the resemblance between the Cafres and the Fellatahs of Sudan, that he formed the opinion, which he confidently expressed, that the Cafres and the Fellatahs were the same race; and Dr. Prichard appears to have been of a similar opinion. Although the verbal affinity between the Foulah and the Sechuana languages is not very striking, yet a relationship between them can be traced. Dr. Latham declares † that "the Fula is no isolated language. It is also a language of the parts to which the Woloff and Mandingo belong, the Woloff most especially." Both Dr. Latham and Dr. Bleek, however, class the Woloff, and the former also the Mandingo, in the same category as the Sechuana dialects, and there are various verbal affinities observable between these several languages. The dark colour and frizzled hair of the Cafres furnishes no ground of objection to the notion of their relationship to the Foulahs. The Mandingos have the negro type fully developed, while the Makololos, belonging to the Basuto branch of the Be-

* Physical History of Mankind, vol. ii. p. 125.

† Transactions of Philological Society, 1858, p. 122.

chuana family, are often as light-coloured as the Foulahs.*

The relation between the Foulahs and the inhabitants of Madagascar has been referred to in connection with their Polynesian affinities. The Hovas, the dominant race of Madagascar, are generally said to have had a Malayan origin, and it cannot be doubted that their language, like that of the Foulahs, presents many points of affinity with various Malayan and Polynesian dialects, which is strongly marked in their systems of numeration. The Cafre type is, however, found among several of the peoples of Madagascar, who are supposed to represent its aboriginal inhabitants. Mr. Crawfurd, † indeed, does not hesitate to assert that all the Madecasses are of African origin. He adds, in opposition to Mr. Ellis and other writers, that the Malagasy does not belong to the Malayan group of dialects, although it possesses what Mr. Crawfurd calls the *Malayan* numerals. It is somewhat strange that the Malagasy numerals approach the most nearly to those of the Tagála dialect of the Philippine Islands. That the black race of Madagascar belongs to the African family is undoubted, and the fact of all the Madecasses, including the Hovas, speaking cognate dialects is almost conclusive proof of their common origin. It cannot be denied, however, that the Madecasses present other points of affinity with the Polynesians besides that of language. Mr. Ellis was struck by their resemblance in feature, and D'Eichthal states that they have many customs in common, as

* See Dr. Livingstone's 'Missionary Travels in South Africa,' p. 186.

† Journal of the Indian Archipelago, vol. ii. p. 190.

"la circoncision, le profond respect pour les morts, le culte des ancêtres, et cette croyance que la mort d'un homme, excepté si elle a lieu sur un champ de bataille, est la suite d'un maléfice jeté sur lui par un sorcier."*

The affinity which has been shown to exist between the Foulahs and both the Madecasses and the Bechuanas is in itself some evidence of the South African relationship of the Madecasses, insisted on by Mr. Crawfurd. There is, moreover, an evident connection between the Malagasy and the Sechuana dialects, although this has been denied. Mr. Ellis himself points out verbal affinities between the former and the dialects of the Mozambique coast, which undoubtedly belong to the Sechuana family, and there is a still closer connection between the latter and the dialect spoken by the inhabitants of the Comoros Islands, which adjoin the northern end of Madagascar. There is, moreover, so much similarity between the customs of the Madecasses and those of the Bechuanas, especially in the particulars referred to by D'Eichthal as proving the relationship between the former and the Polynesians, that the common origin of the Madecasses and Bechuanas cannot be doubted.†

* Mémoires de la Société Ethnologique (Paris), vol. i. part ii. p. 103*n*.

† Compare the particulars given in *Dr. Livingstone's* 'Missionary Travels' as to the prevalence of circumcision among all the Bechuana tribes, and in 'Les Bassoutos,' by *Casalis*, as to worship of ancestors, sorcery, veneration for the ox, and various political customs; with the information as to the customs of the Madacasses contained in *Drury's* 'Adventures in Madagascar,' and *Mr. Ellis's* 'Three Visits to Madagascar.' Is not the name 'menamaso,' or *red eyes*, given to the King's counsellors, referred to by Mr. Ellis, explained by the custom among the Basutos of calling the 'monemotzé,' or counsellors, the *eyes* etc. of the chief?

To complete the view of the intimate relation between the Bechuanas and Madecasses, and the pastoral peoples of North Africa, it is necessary only to show a relationship between the Bechuanas and the Polynesians. A few years ago this idea would have been at once rejected, but now it is well established. There is an affinity between them not only in language, but also in their customs, and even in the stories which circulate among them. The affinity of language must necessarily be difficult to trace, but it is recognisable by a comparison of their vocabularies, and it is seen more especially in their systems of numeration. The other points of relation cannot be better stated than in the words of a critique on Dr. Callaway's 'Zulu Nursery Tales,'* which lately appeared in the 'Saturday Review.' After stating that "animal fables" have been discovered among the Zulus, the reviewer says:—"There is one feature in these stories which reveals their antiquity. Several of the customs to which they allude are no longer in existence among the Zulus. It is not, for instance, any longer the custom among the natives of South Africa to bake meat by means of heated stones, the recognised mode of cookery among the Polynesians. Yet when Usikulumi orders a calf to be roasted, he calls upon the boys of his kraal to collect large stones, and to heat them. There are several other peculiarities which the Zulus seem to share in common with the Polynesians. The avoiding of those words which form part of the names of deceased kings or chieftains is a distinguishing feature of the Zulu and Polynesian languages, being called Ukuhlonipa in the one, and Tepi in the

* 1867, No. 595, p. 371.

other. If a friend who has disappeared for some time, and is supposed to be dead, returns unexpectedly to his people, it is the custom, both among the Zulus and Polynesians to salute him first by making a funeral lamentation. There are other coincidences in the stories of both races which make it more than probable that at some distant period they lived either together or in close neighbourhood."

The so-called non-negro tribes (with the exception of the Hottentots), or those African peoples who have Polynesian affinities, and whom it may be as well to distinguish as *Ethiopians*, have thus been connected more or less closely. The supposition however, that there is any impassable distinction between this family of peoples and those of the so-called negro type, is contrary to fact. Dr. Prichard shows clearly * that all the languages spoken within a triangle, the points of which are occupied by the Súhaili on the eastern coast, near the river Juba, the Kongo languages in the west, and the Cafre in the south, are closely connected. Dr. Prichard was indeed of opinion that the laws of construction of all African languages are the same, and Dr. Latham says,† "Whoever knew anything of the other African languages knew that for every step from such languages as the Coptic and Berber towards the Hebrew and Arabic, a similar advance could be made in the opposite direction, *i. e.* towards the Fellatah, Mandingo, and Woloff, and through them to the most negro languages of the whole continent." Dr. Latham adds, "The evidence that all

* Physical History of Mankind, vol. ii. p. 320.

† Encyclop. Brit., art. "Language."

the languages of Africa are related to each other is, in the mind of the present writer, though not, perhaps, to the majority of investigators, conclusive." The known connection between the Congo and the Sechuana dialects is sufficient to justify us in supposing the existence of the more extensive connection asserted by Dr. Latham. That the system of numeration is the same with both the negro and Ethiopian branches of the African family is evident from an inspection of the vocabulary in the appendix. Nor are other verbal affinities wanting, although almost hidden by the changes which have necessarily taken place in the languages of these peoples throughout the vast period of time during which they have been separated.

Although it cannot be denied that the Ethiopic peoples possess a physical type which is superior to that of the negro race, and that the former are also distinguished by a superior moral and intellectual development, yet the elements of most of the negro peculiarities are clearly traceable among the peoples of the higher type. As to physical formation, we have the opinion of Mr. Burchell, who, as quoted by Dr. Prichard,* says "that he was led by his personal observation to adopt the opinion that, on travelling further towards the north the Kafir tribes would be found gradually to approach, in feature and complexion, towards the characteristics belonging to the black races, who inhabit the equinoctial parts of the same continent." As to similarity of customs, most of those which D'Eichthal referred to as being found among both the Madecasses

* Physical History of Mankind, vol. ii. p. 291.

and the Polynesians are also to be met with in a rudimentary form among the negro tribes; that is, in the form in which they probably existed among the more civilized Ethiopians when they were in a similar barbarous condition. The traits by which the latter are distinguished the most strongly from the negro peoples are their devotion to the pastoral life and the position which they assign to woman. The idea of a female chief is utterly repugnant to the mind of the Ethiopian, until he has arrived at such a stage of culture as that presented by the Hovas of Madagascar, whereas the supreme authority of woman is quite consistent with the low position assigned to the wife in negro communities. The pastoral character of the Ethiopic peoples is, however, their most remarkable peculiarity, and it is one which can be explained only by the supposition that it originated after the habits of the original occupants of the African continent had become fixed. The Basutos always bury their dead with their faces turned to the north-east, and all the Bechuana tribes, and even the Hottentots, appear to have a tradition that they advanced to their present position from the same direction. We have seen that the Foulahs of Senegambia also have a tradition that they once dwelt much further to the east. The eastern side of the African continent is thus identified as having been at some distant period the home of all these pastoral peoples, and we can easily suppose them to have reached different points on that side of the continent from a common centre, which the many curious points of analogy above referred to, when combined with these traditions, require that we should seek

for in Madagascar. The utter ignorance of navigation displayed by all these pastoral peoples is strong evidence that they have not crossed the sea, and it remains only to suppose that they have spread from Madagascar by dry land. It is somewhat curious that the Madacasses have a tradition which may perhaps have something to do with the origin of this pastoral character. Mr. Ellis states* that a high granite mountain, called Ambohitrabiby, is "celebrated in the traditional history of Madagascar as the place where it was discovered that beef was good to eat." Doubtless before this time the ox was valued only as a sacred animal, a character it possessed in ancient Egypt and still possesses in India, and which it has not yet entirely lost among the African tribes. When once its value for food became recognized, its possessors would probably become a strictly pastoral people, and it may have been after that date that the migrations of the Foulahs and Bechuanas commenced. To account, however, for the present positions of these peoples, we must suppose Madagascar and the mainland to have been once united. Doubtless long before the separation between them took place, the negro race had in successive waves overspread the whole continent south of the Sahara, including Madagascar itself. In that island, probably under conditions such as those which have given rise to the brown races of the Polynesian Islands, a similar phenomenon showed itself, and it may be that the Hovas, although of the same stock as the darker peoples of Madagascar, are the parent stock of the pastoral peoples of the African continent.

* Madagascar Revisited, p. 435.

Sufficient grounds have been indicated to support the belief that the Foulahs, Bechuanas, and Madecasses constitute, with the true negroes, but one race. The differences of physical structure between the negro and the Ethiopian are not sufficient to counterbalance the evidence derived from the comparison of language and customs. The physical peculiarities of the negro type are, indeed, no more constant than are those of the other branch of the African race. Among the Congo negroes and those of the Guinea coast may undoubtedly be found tribes in which such peculiarities are exhibited in their most extreme form. They are not universal, however, even in west Africa. M. Du Chaillu described the *Camma*, who reside south of Cape Lopez, and who appear to have all the superstitions and defects belonging to the negro character, as being much like the *Mpongwes* of the Gaboon river.* Again, of the latter people, the same writer says† they "are the best-looking people I have seen, looking very much like Mandingoes, of ordinary size, and with pleasing negro features, but handsomer than the Congo tribes." The Mandingoes themselves have the thick lips and flat noses of the negro, and yet, according to the authorities cited by Dr. Prichard,‡ they are a very superior people, being much given to travelling and trading, and the strictest Mohammedans in Africa. Dr. Livingstone § says, "With every disposition to pay due deference to the opinions of those who have made ethnology their

* Explorations in Equatorial Africa, p. 196.

† Ibid. p. 9.

‡ Physical History of Mankind, vol. ii. p. 59.

§ Missionary Travels in South Africa, p. 379.

special study, I have felt myself unable to believe that the exaggerated features usually put forth as those of the typical negro, characterize the majority of any nation of South Central Africa." This assertion may be extended so as to include peoples of all other parts of Africa.

If it be once established that the Ethiopians and negroes belong to one and the same race, the affinities which have been pointed out between the Polynesians and the Ethiopians must be extended to the Negritic branch of the African race. Nor are independent grounds for this wanting. D'Eichthal asserts that the Foulahs give the name of the kingdom of *Meli*, or *Mali*, to the Senegambia; and he adds,* "Ce nom de *Mali*, qui désigne d'une manière générale le pays des Mandingues (*Mali-nké*) rappelle aussi le nom des Malais, *Malaiou*." It has been already observed that the language of the Mandingoes, who approach in appearance much more nearly to the typical negro than the Foulahs, is placed by Dr. Latham in the "Cafre" class of dialects. It is perhaps, therefore, not remarkable that the Mandingo language has strong Malayo-Polynesian affinities. D'Eichthal, on this subject, says, † "On peut ranger la langue Mandingue dans la catégorie de ces langues qu'on rencontre à chaque pas dans l'Océanie, et qui, sans dériver du Polynésien, ont gardé du contact de celui-ci un certain nombre de mots parfaitement reconnaissables, et qui sont en général de la classe de ceux qui servent aux communications les plus simples entre les peuples étrangers. Tels sont surtout les noms des parties

* Mémoires de la Société Ethnologique (Paris), vol. i. part ii. p. 120 *n*.

† Ibid. vol. ii. part. i. p. 203.

du corps et ceux des principaux objets materiels." As the light-complexioned Foulahs resemble the most closely in appearance and language the *brown* race of the Indian Archipelago, so the darker Mandingo appears to make the nearest approach to the *black* race of the same locality. This we should expect, from the conclusion arrived at by M. Lesson, that the Papuas of New Guinea, and other islands of the Indian seas, resemble the dark peoples of Madagascar, or, as he terms them, the "Cafro-Madecasses."* Polynesian affinities have been found in the Mandingo language,† as also in other negro dialects. These are very apparent in the names of numerals, as to which Mr. Logan has not scrupled to say that those of New Guinea "are African both in system and name."‡ A glance at the comparative table of numerals at the end of this volume will suffice to establish the truth of this observation, and to show the intimate relation which must at one time have subsisted between the Malayo-Polynesian and African peoples.

A very remarkable fact pointed out by D'Eichthal, as connected with the relation between the peoples of Africa and Asianesia, is the verbal affinity which has been found to exist between the Coptic and the language spoken by the inhabitants of Vanikoro, one of the Santa Cruz Islands, and noted for the shipwreck of Lapeyrouse.§ That this affinity is real can hardly be doubted, although our means of judging of its extent is at present very

* Prichard's 'Physical History of Mankind,' vol. i. p. 250.

† Mémoires de la Société Ethnologique (Paris), vol. ii. part i. p. 204.

‡ Journal of the Indian Archipelago, vol. iv. p. 347.

§ Mémoires de la Société Ethnologique (Paris), vol. ii. part i. p. 199.

slight. Its truth may indeed be considered as confirmed by the traces of Egyptian culture which have been discovered among the Papuas of New Guinea, and the Polynesians.* It is with the latter the ancient Egyptians appear to have had the closest agreement. Not only have many verbal affinities between the Coptic and the Polynesian dialects been discovered, but also many curious analogies in their cosmogonies,† which point to a period when they have been in close contact. D'Eichthal, after referring to the existence among the ancient Egyptians of two races, one black and the other a lighter colour, adds, ‡ "En présence de ces faits, on peut se demander si l'ancienne population Égyptienne, ou pour mieux dire, la race noire qui a fait partie de cette population, n'appartenait pas à la race noire océanienne, si elle n'a pas été portée en Égypte par le même mouvement de migration qui conduisit les Polynésiens à Madagascar, les Foulahs, et il semble aussi les Mandingues en Afrique. La langue copte, par son système grammatical, appartient à la même famille que celles de l'Océanie et de l'Afrique. Les anciens Égyptiens ont dû certainement sortir de l'une ou de l'autre de ces deux régions. Jusqu'ici cependant il a été impossible de les rattacher à aucune souche Africaine. Il est donc parfaitement rationnel et légitime de chercher les traces d'une filiation de leur race avec celles de l'Océanie."

Since these words were written, it has become known to philologists that the Coptic has a very close affinity to an African tongue—the Hottentot—which had hitherto

* Mémoires de la Société Ethnologique (Paris), vol. ii. part i. p. 198.

† Ibid. p. 188 *et seq.* ‡ Ibid. p. 211.

been thought to be almost *sui generis*, as the speaker of it himself is still considered by many writers. It is now found that not only does the Hottentot resemble the Coptic in grammatical structure, but that the signs of gender are almost identical in the Namaqua-Hottentot and the Coptic, and that the feminine affix may be considered the same in both languages, and in the Galla dialect.* Nor is there wanting other verbal affinity, although it is not surprising that the resemblance in most words between the Hottentot and Coptic has become almost lost. The discovery of a relation between languages spoken at the two extremities of the African continent is important, not only as it connects the Hottentot with other African dialects with which the Coptic has been showed to be allied, but also as it suggests that a connection may be found to exist between the former and those of Polynesia. Maury, some time since, said †:—"The foundation of the grammatical forms in the Hottentot idioms is met with among the tongues of Africa. Thus the verb presents, like them, a great richness of changes; it has a form direct, negative, reciprocal, causative, and all these *voies* are produced by the addition of a particle to the end of the verbal radical. Their double plural, a common and a particular, is a trait which assimilates them to the Polynesian, and even to the American languages." This double plural has, moreover, been found in various other languages, both of Asia and Africa. There are other facts to be mentioned, however, which tend to re-

* See 'Reynard the Fox in South Africa,' by Dr. Bleek, preface, p. 19.

† Indigenous Races of the Earth, p. 67.

move the Hottentot from that isolation among the African languages which it has so long suffered. The *click*, or *gluck*, is not peculiar to the Hottentot dialects. The same phenomenon is by no means uncommon in some of the Sechuana dialects;* and from Du Chaillu's account of the *Fan* language, and that of the *Osheba*—of which he says,† "harsher, ruder, or more guttural sounds I never heard"—it is probably found among these people. The discovery among the Cafres of "animal fables"‡ would appear to lessen the importance, as a mark of family relationship, of that sex-denoting character, to the absence of which Dr. Bleek ascribes the supposed inability of the Cafre imagination to form such fables.§ The authority of Dr. Latham as to the connection between the Semitic dialects and the African languages generally has already been quoted;|| and Maury says** that the great Congo family of dialects, which embraces the Sechuana, "approximate in a very singular manner, as regards certain points of their organization, to that family that may be termed *Hamitic*, and which has for its type the Egyptian, of which the *Coptic* is but a more modern derivative. To it may be attached, on the eastern side, the Galla, and on the western the Berber." Almost exactly the same remark has been made by Dr. Bleek†† with regard to the Hottentot language, and

* See 'Southern Africa,' by the Rev. Francis Fleming, p. 235.

† Explorations in Equatorial Africa, p. 95.

‡ See *ante*, p. 161.

§ See 'Reynard the Fox in South Africa,' preface, p. 20.

|| See *ante*, p. 162.

** Indigenous Races of the Earth, p. 65. †† *Loc. cit.* p. 18.

he carries the comparison so far as to include also the Semitic dialects. The Semitic affinities of the Sechuana are, however, well known; and the verbal agreements pointed out by Casalis * and other writers, are too exact not to be real.

There is in reality no sufficient reason for the exclusion of the Hottentot from the African family, which the generality of modern writers favour on the ground of his supposed physical resemblance to the Mongolian. His colour and the general contour of his face furnish no stronger grounds for classing the Hottentot with the Kalmuck than does his short and crisp hair for placing him with the negro. M. Geoffroy Saint-Hilaire † would, indeed, exclude him from both these divisions of the human family. It may be doubted, however, whether the physical peculiarities which have led this distinguished naturalist to this opinion are sufficient to justify the unique position he has assigned to the Hottentot. A writer, who certainly is not guilty of flattery in his general description, says of the Koranna Hottentots, "that in appearance and stature they are the most singular, approaching in every particular to a caricature on the contour of the Egyptian Copts." ‡ This resemblance to the Egyptians is curious, considering the affinity which has been found between the languages of these peoples; and it is not confined to the Hottentots. The *Bashinje*, of Londa, whom Dr. Livingstone describes § as making

* See 'Les Bassoutos,' p. 333.

† See Mémoires de la Société d'Anthropologie (Paris), vol. i. pp. 137, 139.

‡ 'Southern Africa,' by the Rev. Jas. Fleming, p. 139.

§ Missionary Travels in South Africa, p. 442.

"a nearer approach to a general negro appearance than any tribes" he met with, follow the Egyptian fashion of wearing the hair. Of other inhabitants of Londa, Dr. Livingstone says,* "The mode of dressing the great masses of woolly hair, which lay upon their shoulders, together with the general features, again reminded me of the ancient Egyptians."

Before further considering the African relationships of the Hottentot, it will be advisable to take a glance at the dark races of Australasia and the Pacific. On the eastern side of the Indian Ocean, and dividing it from the Pacific, is the great island-continent of Australia. The primitive race which inhabits this continent is of the greatest interest to the student of anthropology. Comparatively little is known of it, however; and it is yet undetermined whether the Australian aborigines shall be classed with the Malayan or with the Polynesian race, or whether he shall occupy the same distinguishing position as that assigned by Geoffroy Saint-Hilaire to the Hottentot. Mr. Wallace,† one of the latest and most trustworthy authorities, seems inclined to class the Australian with the Polynesian. To this division he also assigns the Papua negro, who appears to differ from the brown Polynesian only by his darker colour and more frizzly hair. The opinion of Mr. Windsor Earl, who supposes an infusion of foreign blood in northern Australia,‡ in reality confirms this view; for the facts he refers to § are explainable on the assumption that both

* Missionary Travels in South Africa, p. 449.

† See Transactions of the Ethnological Society of London, 1865, p. 212.

‡ See Journal of the Royal Geological Society, vol. xvi. p. 248.

§ Ibid. p. 243.

the Papuas and Polynesians belong to the same race. The combination of straight hair with somewhat negro features, which is usually cited as peculiar to the Australian aborigines, is not by any means universal throughout the whole of the continent. Near Port Essington, in the north—as in New Caledonia and Van Diemen's Land—the aborigines closely resemble the Papuas of New Guinea, and there appears not to be sufficient ground for the opinion often expressed that the natives of Van Diemen's Land and those of Australia belong to different stocks.* Mr. Oldfield expressly says† that in some instances the hair of the latter "assumes much of the woolliness of the negro;" and Pickering states,‡ as to the hair of the Australian aborigines generally, that it "seemed rather coarse, and instead of being perfectly straight, was usually undulating, or even curling in ringlets." That all the aboriginal inhabitants of Australia belong to the same race can now hardly be doubted, notwithstanding opinions are still expressed to the contrary. This was the opinion of M. Dumontier, and of MM. Quoy and Gaimard, whom he cites; § and a later writer goes so far as to say that "one of the most remarkable facts connected with them is, that over the entire continent, from Swan River to Sydney, from Melbourne to the Gulf of Carpentaria, they are so exactly similar in appearance, complexion, customs, and language, in their weapons and manner of fighting and

* See Pickering's 'Races of Man' (Bohn), p. 145.

† Transactions of the Ethnological Society (London), 1865, p. 219.

‡ Races of Man (Bohn), p. 139.

§ See 'Voyage au Pôle Sud sur l'Astrolabe,' Anthropologie, p. 123.

hunting, that it would almost appear as if they were all descended from one canoe-load of people, and these again from the same tribe." Mr. Lang * cites facts in support of this opinion; and it is confirmed by Sir George Grey, who says:—"My observations lead me irresistibly to the conclusion that all the various dialects yet known to us throughout this great continent are intimately connected in their origin and roots; that the inhabitants are (with some few exceptions on the northern coast, perhaps) of the same family and race."†

If the Australian aborigines are to be classed with the Papuas and Polynesians,—a view which is supported, to some extent, by the evidence of both language and customs,—the connection which has been established between the latter and the African peoples must extend also to the former. The Australians have, however, been so long regarded as a distinct race that it is advisable to see whether any points of affinity can be established specially between them and any of the peoples of the African continent. It may be observed, in the first place, that the "obliquity in the position of the eyes, which is considered as being characteristic of some of the Polynesian tribes," and which is said to no less distinguish the Hottentots of South Africa, is very observable among the Oitbi tribe, near Port Essington, in North Australia.‡ Notwithstanding Pickering's assertion that every one at

* 'The Aborigines of Australia,' by Gideon S. Lang, Esq. (Melbourne), 1865, p. 3.

† Vocabulary of the Dialects of South-Western Australia, preface, p. 7.

‡ G. Windsor Earl, in 'The Journal of the Royal Geographical Society,' vol. xvi. p. 243.

Sydney knows that an Australian is not a negro, he yet says that "the Australian may be characterized, in general terms, as having the complexion and features of the negro, with hair in the place of wool."*. This difference of hair has been shown not to be universal, and it is of little importance if the frizzly-haired Papuan and the Australian are identified as belonging to the same race. Mr. Oldfield appears to be of opinion that there is an affinity between the Australian and the negro, and he says, moreover, that "the tribes inhabiting the country from the Murchison River to Shark's Bay possess more of the characteristics of the negro family than do the aborigines of any other part of Australia."† He adds that, "as some of their proper names are similar to those used on the opposite coast of Africa, we may assume that there has been a recent mixture of negro blood with that of these Western Australian tribes."

That there has been a connection, not only between these tribes, but also between the Australian aborigines generally, and the African peoples, and that at probably a very distant, instead of a recent, period, is evident from certain customs, most of which appear to be universal throughout the whole of the Australian continent.‡ At a preceding page it was stated that the Malagasy and

* Races of Man (Bohn), p. 139.

† Transactions of the Ethnological Society of London, 1865, p. 218.

‡ See one of Mr. Logan's valuable memoirs, in 'The Journal of the Indian Archipelago,' for a collection of curious particulars in which the customs of the African and Asianesian peoples agree; vol. iv. p. 323 *et seq.*

Bechuanas agree with the Polynesians in ascribing disease and death to sorcery.* This idea is equally prevalent among the Australian aborigines. Mr. Oldfield says,† "Disease and death, ill-success in hunting, loss of personal property,—in fact, most of the misfortunes which can befall a man,—are all attributed to the power which hostile tribes possess over the spirits and demons which infest every corner of the land." This is done by a species of enchantment called "Bool-lia," or "Boylya," effect to which is given by the malignant *Ingnas*, most of whom "are the souls of departed black men who, from some cause, have not received the rites of sepulture, and in consequence are constrained to wander about the place of their death." These Ingnas are very numerous, and especially haunt graves, which, therefore, are seldom visited by the men; and they are supposed to have some peculiar power over animals, which renders it necessary that immediately an animal is killed, its hind legs should be broken to get rid of the evil influence.‡ This peculiar superstition is strictly African. Probably the very name for this kind of sorcery is used by the Bakwains of South Africa, who call witches, "Baloi."§ The Camma of West Africa think that disease is owing to the devil having got into the sick man. Most of the negro tribes ascribe disease to sorcery, though it does not appear that the agency of the spirits of the departed is universally used for the purpose. The fear

* See *ante*, p. 160.

† The Transactions of the Ethnological Society of London, vol. iii. p. 235.

‡ Ibid. p. 240.

§ See Dr. Livingstone's 'Missionary Travels in South Africa,' p. 127.

of these spirits is, however, as intense among the negroes* as with the Australian natives, and the former do sometimes at least treat them as the authors of disease.† The idea that those persons who have not received the rites of sepulture become Ingnas, is doubtless connected with the custom, mentioned by Robert Drury as having been practised in Madagascar, of cutting to pieces and scattering about the battle-field the bodies of fallen enemies, to prevent their burial.‡ Probably the worship of deceased ancestors, which is so prevalent in Madagascar and South Africa,§ is connected with the belief in the malignant influence of departed spirits. A similar remark may be made with reference to the influence of the Ingnas over dead animals, from which probably has arisen the superstition, universal among the inhabitants of South Africa, which prevents the eating of animals that are "roonda,"‖ or forbidden to a person or tribe. The most curious belief in connection with the Ingnas is their liability to be killed, and eaten by the living. A story-teller will narrate "how he fought for hours with the spirit until, hugging it closely (which mollifies its supernatural powers), he killed, and, as a climax of wonder, cooked and ate it."** We cannot suppose that this is seriously believed, at least by

* See Du Chaillu's 'Explorations in Equatorial Africa,' p. 335.

† See Dr. Livingstone's 'Missionary Travels in South Africa,' p. 331.

‡ Adventures in Madagascar, 1807, p. 268.

§ Du Chaillu's 'Explorations in Equatorial Africa,' p. 335.

‖ See Dr. Livingstone's 'Missionary Travels,' p. 165; and Du Chaillu's 'Explorations in Equatorial Africa,' p. 308.

** Mr. Oldfield, in the Transactions of the Ethnological Society of London, vol. iii. p. 241.

the narrator; but a similar story is met with among the negro tribes of West Africa. According to Du Chaillu, the Camma have a much dreaded spirit, called *Ovengna*, who is not worshipped, and has no power over diseases, but who "wanders unceasingly through the forests, and catches and destroys luckless travellers who cross his path.... Sometimes, they relate, such a spirit is met and resisted by a body of men, who wound him with spears, and even kill him. In this case his body must be burnt, and not even the smallest bone left, lest a new Ovengna should arise from it."* The very name of this spirit reminds us of the Australian *Ingna*.

Mr. Oldfield gives a graphic account of the means used by the aborigines of Australia, on the death of one of a tribe, to discover the sorcerer,† and the same plan —which consists in giving a piece of meat to the suspected person, that his guilt may be proved by his inability to swallow it—is, according to Casalis,‡ employed among the Basutos of South Africa. The cruelty of the Bakalai of Western Africa, in driving their sick into the forest to die,§ has its counterpart among the Australians, who either leave them to their fate, or spear them, that they may cease to be a burden to them.‖ Among both the Australians and the Basutos, the dead are buried in a "squatting" position;** and, as among the former it is considered most unlucky to utter a dead

* Explorations in Equatorial Africa, p. 203.

† Transactions of Ethnological Society, vol. iii. p. 246.

‡ Les Bassoutos, p. 310.

§ Du Chaillu's 'Explorations in Equatorial Africa,' p. 383.

‖ Oldfield, loc. cit. p. 243. ** Casalis, 'Les Bassoutos,' p. 212.

man's name,* so among the Cafres it is a heinous offence, under many circumstances, to mention a man's *birth-name*.† These birth-names always have "reference to some attribute which the child is desired to possess, or to some circumstance which has occurred at the time" of birth; and the same practice as to "naming" prevails among the Australian aborigines. ‡ A most curious custom found among the Cafres,§ which requires that a man shall not, after marriage, look at the face of his mother-in-law, is found not only among some of the Australian tribes,‖ but also throughout great part of Polynesia. Matriculation, on attaining the age of puberty, is found among both the Australian and African peoples, and the particular customs attending it, such as circumcision, tattooing, boring the septum of the nose, and removing one of the eye teeth, are common to the aborigines of Australia** and to the inhabitants of Eastern Africa. The loss of two of the upper front teeth which Dr. Livingstone met with among the Batokas of the Zambesi,†† was observed also by Dampier among the aborigines of North-western Australia.‡‡ Other matters in which these races agree might be mentioned, but it is necessary to add only the custom which obtains among the Australians, "that no man can

* Oldfield, loc. cit. p. 240.

† The Rev. J. G. Wood's 'Natural History of Man,' now publishing, vol. i. p. 88.

‡ See 'The Aborigines of Australia,' by Mr. Gideon S. Lang, p. 21.

§ The Rev. J. G. Wood's 'Natural History of Man,' vol. i. p. 88.

‖ Oldfield, loc. cit. p. 251. ** Ibid. p. 252, 254.

†† Missionary Travels in South Africa, p. 532.

‡‡ See 'History of Discovery in Australia,' by Wm. Howitt, vol. i. p. 66.

marry a woman of the same family-name as himself, and that the children should always take the family-name of their mother."* The former of these customs is found among the *Bakalai*,† and other tribes of West Africa, and one very similar to the latter is found among the *Camma*, with whom "descent and inheritance are taken from the mother."‡ It may be added that the *banyan*-tree, which Livingstone says is looked upon with veneration, and all the way from the Barotse to Loanda thought to be a preservation from evil, appears, according to Mr. Earl, to have a similar character in Northern Australia,§—certain superstitions connected with it being common both to the inhabitants of the Coburg Peninsula and to the Indian Islands.

One of the most curious facts which the comparison of these customs establishes, is the evident relationship between two such apparently different races as the degraded Australian and the peoples of Eastern Africa, especially the Cafres, who are supposed to present the finest type of the unrestrained "man of nature." Mr. J. R. Logan, who has made the most careful and elaborate researches into the affinities of the various Indo-African races, has come to the conclusion,‖ that "the physical affinities and those in language and customs between the Australian and other Indo-African tribes of Asianesia, are strong and decided." The same writer

* 'Vocabulary of the Dialects of S. W. Australia,' by Sir George Grey, p. 3.

† Du Chaillu's 'Explorations in Equatorial Africa,' pp. 388, 251.

‡ Missionary Travels in South Africa, p. 495.

§ Journal of the Royal Geological Society, vol. xvi. p. 240.

‖ Journal of the Indian Archipelago, vol. iv. 1850, p. 420 *n*.

asserts, moreover, that the latter exhibit distinct traces of African influence which are found throughout the whole Indian Archipelago, Australia, and Papuanesia, and at least a portion of Micronesia.* "We cannot," says Mr. Logan,† "take up a work on Africa without finding an abundance of Asianesian characters." On the preceding page, he says, "The whole western margin of the Indian Oceanic basin, from the Red Sea to Kafirland, gave words and customs to the eastern islands." In support of the primeval connection of these peoples, this writer asserts ‡ that "nearly all the languages spoken by the races in which the barbaric element remains prominent, or did so in historic times, have strong resemblances, sufficient of themselves to suggest the belief that there was a considerable sameness in the intellectual development with which they originated." Among these languages he places the Cafre and Australian. Mr. Logan points out many physical resemblances between the Asianesian and East African races, and he adds § that "there are probably few varieties of the east African types, from those of the Danakil on the Red Sea to those of the Kafir and Kongo tribes on the south, to which near approximations might not be found in the eastern islands." One of the chief of these peculiarities is the *pyramidal* form of the nose, which "connects the Australians, Papuans, and Tamulians in a very striking manner." This appears to be the type of nose which distinguishes the Cafres, and it was probably that which led Lichtenstein to regard

* Journal of the Indian Archipelago, vol. iv. 1850, p. 310.

† Ibid. p. 330. ‡ Ibid. p. 296. § Ibid. p. 320 *et seq.*

them as having a Semitic form of features; as the same peculiarity caused Mr. Wallace to say that the Papuan face has a Semitic character.* Mr. Logan himself asserts that "some of the African tribes have a Semitic cast of countenance, and there are varieties of the southern Indian and Papuan families which present the same aspect."

The existence of the affinity which has been pointed out between the inhabitants of Eastern Africa and those of Papuanesia, taken in connection with the Polynesian affinities of the Cafres referred to in a preceding page,† tends strongly to confirm the opinion expressed by Mr. Wallace of the identity of the Papuan and Polynesian tribes; and the establishment of this identity on independent grounds is no less valuable as evidence of the extension to Polynesia of the influence of what Mr. Logan calls the *African* element. This writer appears to have almost doubted such an extension, but a comparison of the African system of numeration with that found in the islands of the Pacific is sufficient to render it absolutely certain. The resemblance between many of the customs of the aborigines of Australia, and those met with in South Africa, even among the Cafres, proves that the former are not so isolated as is usually supposed. It is, nevertheless, undoubted that the so-called "Cafre" family of South African peoples differ much from the Australians in many physical characters, in which they appear to approach more nearly the Pa-

* Paper read before the British Association, in 1863, on "Varieties of Man in the Malay Archipelago."

† See *ante*, p. 161.

puas proper. From this fact, however, may be gathered an argument for the race identity of the Australians and the Papuas, and even for that of the Cafres and the Hottentots,—opposed as the latter notion is, apparently, to the opinion of all South African travellers.

The evidence furnished by similarity of customs is, indeed, not wanting to support the opinion expressed as to the relationship of the Cafres and Hottentots. Dr. Livingstone remarks * that *boguera* (circumcision) is practised by all the Bechuana and Cafre tribes south of the Zambesi, but not by the negro tribes beyond twenty degrees south. Now, there is reason to believe that the Hottentots formerly, if not at present, observed the same custom. Lieut.-Col. Sutherland says,† "The Hottentots, I heard from very good authority,—Captain Stretch, I think,—were a circumcised people like the Kaffers when the Europeans first visited the country." Thunberg, indeed, when writing of the Hottentots, expressly states ‡ that "circumcision is a ceremony used by them, and may, probably, be of high antiquity, although not commonly practised at present." The fact of circumcision not being practised now by the Hottentots, if it be so, is easily accounted for. Mr. Oldfield says, as to the customs observed by the natives of Australia on matriculation, "As the Europeans encroach on the domains of the aborigines, all these customs gradually disappear, the lads becoming too wise to submit to such torture, from which they can *now* gain

* Missionary Travels in South Africa, p. 187.

† 'Memoir on the Kaffers, etc.,' Cape Town, 1847, p. 266.

‡ 'Account of the Cape of Good Hope,' Pinkerton's Voyages, vol. xvi. p. 142.

no adequate advantage,"* and a similar remark may be made as to the Hottentots, who are noted for the aptitude with which they take to European customs. The absence of the practice among the Hottentots would not, moreover, be of itself any proof of their not being connected with the Bechuanas, as it is wanting among many of the Australian tribes, all of whom, nevertheless, observe *some* custom on boys attaining the age of puberty, and among the Namaqua Hottentots, at least, certain ceremonies take place at the same period.† It may be remarked, also, that as among the Bechuanas,‡ so among the Hottentots, an analogous ceremony is observed on girls arriving at maturity.§ The strongest argument, however, in support of the common origin of the Bechuanas and Hottentots is derived from their both being pastoral peoples. The keeping of cattle is one of the most distinguishing traits of the Ethiopian tribes, and the Hottentots have always been thus distinguished.‖ Lichtenstein says,** cattle were held in high consideration by the Korannas, and the Namaquas almost subsist on the milk supplied by their numerous herds.†† Of the Koras living near the Hartebeest River, Prichard remarks,‡‡ that they "are entirely destitute of cattle, and live precisely as do the Bushmen. 'Their

* Transactions of the Ethnological Society of London, vol. iii. p. 253.

† See 'The World as it Is,' vol. iii., by W. C. Stafford, p. 171.

‡ See Dr. Livingstone's 'Missionary Travels in South Africa,' p. 149.

§ See Barrow's 'Travels in the Interior of Southern Africa,' vol. i. p. 163.

‖ See Dr. Livingstone's 'Missionary Travels,' p. 101.

** Travels in Southern Africa, vol. ii. p. 253.

†† See Fleming's 'Southern Africa,' p. 154.

‡‡ Physical History of Mankind, vol. ii. p. 274.

present situation exhibits,' as a sensible and judicious traveller has observed, 'the obvious process by which the Bushman race have been originally driven back from the pastoral state, which was formerly the condition of the whole Hottentot family, to that of the bushman and robber.'" It is noticeable that, while among the Cafres the women are not allowed to milk the cows,* among the Hottentots, according to Thunberg,† "the man will never drink milk that has been drawn by the women."

There are other customs common to the Hottentots and Cafres. According to Alberti,‡ the most glorious action a Cafre can perform is the killing of a lion, and a special ceremony is performed in honour of his bravery, —a custom which is also found among the Hottentots.§ The drinking of the gall of a victim, recorded of the Zulus by the Rev. J. G. Wood,‖ renders the account given by Kolben,** of certain customs said by him to have been in vogue among the Hottentots, very probable. From Thunberg's statement,†† it may be inferred that these customs were in his time being abandoned. The eating of a certain part of the body of an enemy, mentioned by Lichtenstein‡‡ as practised by the Be-

* 'The Natural History of Man,' by the Rev. J. G. Wood, vol. i. p. 62.

† 'Account of the Cape of Good Hope,' Pinkerton's Voyages and Travels, vol. xvi. p. 89.

‡ Description physique et historique des Cafres, p. 158.

§ See l'Abbé Migne's 'Dictionnaire d'Ethnographie,' art. "Hottentot."

‖ Loc. cit. p. 127.

** "Voyage to the Cape of Good Hope," in 'The World Displayed,' vol. x. pp. 83, 87.

†† Pinkerton's Voyages and Travels, vol. xvi. p. 89.

‡‡ Travels in Southern Africa, vol. ii. p. 330.

chuanas, and which, doubtless, had the same object as the peculiar customs mentioned by Kolben, is said by Labillardière * to have been usual among the natives of New Caledonia.

The physical characteristics of the Hottentot are no more peculiar to him than are his customs. According to Dr. Livingstone,† "some of the peoples of south Central Africa are as light in hue as the Bushmen;" while the same traveller met with Bushmen who were "tall, strapping fellows, of dark complexion,"‡ from which it is evident that colour is not a special race-character. The hair of the Hottentot is said to be more woolly than that of the negro, and in this it agrees with that of the Cafre, which, according to Prichard,§ sometimes resembles the hair of the Hottentot in growing in small separate tufts. The high cheekbones, which give to the latter his *eurygnathous* character, are, according to Lichtenstein and other travellers,‖ no less distinctive of the Cafre. Of the several peculiarities referred to by M. Geoffroy Saint-Hilaire,** as distinctive of the Hottentot, the extreme flatness of the nose is by no means universal. Barrow expressly says,†† that the Hottentot face "differs very materially in different families, particularly in the nose, some of which are remarkably flat, and others considerably raised." It is admitted by M. Saint-Hilaire that "le développement des nymphes, et celui de la région fessière," so often referred to in con-

* Voyage in Search of La Pérouse, vol. ii. p. 225.

† Missionary Travels, p. 338. ‡ Ibid. p. 78.

§ Physical History of Mankind, vol. ii. p. 292. ‖ Ibid. p. 290.

** Mémoires de la Société d'Anthropologie (Paris), vol. i. p. 139.

†† Travels in the Interior of Southern Africa, vol. i. p. 157.

nection with the Hottentot females, are characters more singular than important, and the former at least, if we may believe Alberti,* is found also among the Cafres. Supposing it to be proved that the other anatomical peculiarities referred to by M. Saint-Hilaire belong only to the Hottentot, it must be doubted whether they are sufficient, even when combined with the *eurygnathous* and *prognathous* characters,—both of which appear to be possessed by the Cafre, although only the latter is allowed to him by this writer,—to justify the Hottentot being placed apart from all other races of men.

The Hottentots and Cafres are connected by superstitions as well as customs. The curious superstition which prevents a man from killing, and in many cases from eating, the flesh of certain animals, is found among the Hottentots as among the negroes of West Africa and the Bechuanas of the south and east. Among the Bushmen of the Zouga, this animal is the goat.† There is another curious point of connection between the Hottentots and Bechuanas. Dr. Livingstone states ‡ that in all the pretended dreams or visions the latter have of their god he has a *crooked leg*. The same idea is found among the Namaqua Hottentots, who call their supreme being *Suicap*, or "broken-knee." § The Cafres call this god "Tixo," and according to M. Pouchet, he was in reality a doctor or sorcerer among the Hottentots, who was "held in great estimation for

* Description des Cafres, p. 32.

† Dr. Livingstone's 'Missionary Travels in South Africa,' p. 165.

‡ Ibid. p. 124.

§ See 'The World as it Is,' vol. iii. by W. C. Stafford, p. 171.

his extraordinary power during his life," and who had a wounded knee.* Supposing this to be the origin of the Hottentot and Cafre deity, it is proof, at least, of the intimate connection that has at one time existed between these peoples. Dr. Livingstone, however, points out as a curious coincidence, which may perhaps furnish another source for the agreement in the description of their deity given by the South African peoples, that the Egyptian god "Thau" was also represented as having a crooked leg. That these similar notions can have had a common origin, is not so absurd as might be supposed. Dr. Livingstone says that the Makololo women pound their maize in "large wooden mortars, the exact counterpart of which may be seen depicted on the Egyptian monuments."† To this may be added, that the curious custom the Makalolo have of shaving the horns of their oxen, to make them grow in fantastic shapes, was practised in North Africa thousands of years ago, as is proved by the fact that "the tributary tribes of Ethiopia are seen on some of the most ancient Egyptian monuments, bringing contorted-horned cattle into Egypt."‡ There are points of resemblance between the customs of the Ethiopians of the North and those of the Hottentots equally striking. Barrow says, § "The Ethiopian soldiers, when called upon to defend themselves, or to face an enemy, stuck their poisoned arrows within a fillet bound

* The Plurality of the Human Race (London), p. 68.

† 'Missionary Travels in South Africa,' p. 195.

‡ Ibid. p. 192.

§ Travels in the Interior of Southern Africa, vol i. p. 283.

round the head, which, projecting like so many rays, formed a kind of crown. The Bosjesmans do exactly the same thing." This writer was indeed so much struck with the resemblance between many of the customs described by writers of antiquity and those of the Hottentots, that he does not hesitate to say,* "Indeed, from all the ancient accounts that have been preserved of the Egyptians and Ethiopians, it would appear that the real Hottentots or Bosjesmans were the people intended to be described." There is, however, no occasion to draw this conclusion, if we allow these peoples a common origin, which would have to be extended also to the Bechuanas, whose Ethiopic character has been insisted on for independent reasons. It can hardly be said that the languages spoken by the Bechuanas and Hottentots furnish conclusive proof of this common origin. There are, nevertheless, verbal agreements between them, which are by no means difficult to trace, if it be remembered that while the Sechuana dialects abound in prefixes, in the Hottentot, affixes are no less abundant.

Notwithstanding the physical superiority of the Bechuanas, it may be questioned whether the differences between them and the Hottentots are more important than those which are found to exist between other peoples who are classed together, as, for instance, the Papuas and Australians. It is, indeed, not at all improbable that the Hottentots and Bechuanas bear the same relation to each other as do these two members of the great Asianesian family. Analogy has been drawn be-

* Travels in the Interior of Southern Africa, vol. i. p. 282.

tween the Cafres and Papuas, and resemblances equally striking can be found between the Australians and the Hottentots. M. Geoffroy Saint-Hilaire distinguishes both of the latter peoples as *eurygnathous*, while both possess also the *prognathous* character, although it is the more fully developed in the Hottentot,—the Australian being classed as the lowest term in the series of straight-haired peoples, none of whom but himself are *prognathous*. At a preceding page,* however, it was shown that the hair of the Australian is often woolly and curling, characters which that of the Papuas possesses in a still greater degree,—the latter being exactly like that of the Hottentot, growing "in small tufts, each of which keeps separate from the rest; and the hairs, if allowed to grow, twist round each other and form spiral ringlets."† Dr. Carl Vogt places the Hottentots and Australians, with the Polynesians, at the lowest point of the scale of cranial capacity,‡ which agrees with the conclusion drawn from other characters they possess in common. The obliquity of the eyes which the Polynesians and Hottentots often possess is also found among some of the Australian tribes.§ The flat nose, thick lips, and general ugliness of feature which, according to some writers, are so characteristic of the Hottentot, are equally common among the Australians; but, as to the latter, Pickering states || that some of the natives "had the face decidedly fine, and several of the young women had a very pleasing expression of countenance." He adds, "Strange

* Page 174.

† 'Native Races of the Indian Archipelago,' by George Windsor Earl, p. 1.

‡ Lectures on Man, p. 88.

§ See *ante*, p. 175.

|| 'Races of Man,' Bohn, p. 139.

as it may appear, I would refer to an Australian as the finest model of the human proportions I have ever met with,—in muscular development combining perfect symmetry, activity, and strength, while his head might bear comparison with an antique bust of a philosopher." Very similar remarks have been made as to the Hottentots and Bushmen,* who are often remarkable for their symmetry of proportion when young.

There are several customs, besides those already mentioned, which are well worth referring to in connection with the present portion of the subject. Such is the custom of shaving the heads of young girls, apparently on their arriving at maturity, which was observed among the Hottentots by both Lichtenstein † and Barrow,‡ and which was noticed by M. Labillardière among the inhabitants of Van Diemen's Land.§ An analogous custom is found also among the Cafres.|| Lichtenstein relates of a Bosjesman, whose wife had been killed for sorcery, that he "himself, for fear she might trouble him after death, had dashed the *head* of the corpse to pieces with large stones, then buried her, and for greater security made a large *fire* over the grave."** Now, it is remarkable that the removal of the head before burial is practised by some, at least, of the Australian tribes,††

* See Dr. Prichard's 'Physical History of Mankind,' vol. ii. pp. 273-9.

† Travels in Southern Africa, vol. ii. p. 237.

‡ Travels in the Interior of Southern Africa, vol. i. p. 163.

§ Voyage in Search of La Pérouse (Lond. 1800), vol. ii. p. 60.

|| Wood's 'Natural History of Man,' vol. i. p. 44.

** Travels in Southern Africa, vol. ii. p. 61.

†† See Mr. A. Oldfield, in the Transactions of the Ethnological Society (Lond.), 1865, p. 248.

probably for reasons connected with the belief in *Ingnas*, and for some time after death a fire is daily lighted over the graves.* Mr. Oldfield refers to the unaccountable fondness of all the Australian natives for *fat*, which, he says,† "admits of no philosophical explanation." May it not have had its origin in some forgotten superstitious custom? Among the Namaqua Hottentots it appears to have been part of the ceremony performed on the matriculation of a youth, to "kill an animal and wrap the fat about the neck and head of the youth, which he must wear till it gradually drops off."‡ The entrails of the animal are made use of in the ceremony, as they are used also among the Cafres for certain superstitious purposes, and it is curious that the entrails of victims of the Australian cannibal feasts are often reserved for some object unknown.§ The Australians, like the Hottentots and so many other African tribes, have a superstitious fear of or veneration for certain animals.|| This custom, which with the former is called *kobong*, and among the West African tribes *roondah*, according to Prichard resembles the Polynesian *tabú*, and it is found also among the North American Indians. Barrow mentions ** that the Hottentots were in the habit of cutting off the points of their fingers to cure diseases. This practice, although not met with apparently among

* See Mr. A. Oldfield, in the Transactions of the Ethnological Society (Lond. 1865), p. 245.

† Ibid. p. 276.

‡ 'The World as it Is,' vol. iii. by Wm. Stafford, p. 171.

§ Mr. Oldfield, loc. cit. p. 286.

|| Prichard's 'Physical History of Mankind,' vol. v. p. 268.

** Travels into the Interior of Southern Africa, vol. i. p. 289.

the Australians, is prevalent in the South Sea Islands.* Another point in which the Australians and the Hottentots have a curious agreement, is the difficulty a stranger has in gaining any information from them. Thunberg says quaintly †:—"It is, however, not always easy to get the truth out of the Hottentots. One must never attack them with questions to the point, when one wishes to know the truth of anything; but it must be fished out of them by degrees." The same complaint is made by travellers with reference to the Australians, who are so polite that they will never contradict, and always agree with a questioner.‡ One other point in which these barbarous peoples agree must suffice. Lichtenstein gives § a marvellous account of the capacity for food of his Hottentot attendants, but it appears to be no greater than that exhibited by the Australian aborigines,|| who equal the former also in laziness and carelessness for the future, as portrayed by South African travellers. Reference must, however, be made to the curious cave-paintings discovered by Lieutenant, now Sir George, Grey, in North-Western Australia,** and to the representations of animals met with on Clark's Island by Captain King.†† The aborigines, according to Mr. Oldfield,‡‡ ascribe these pictures to diabolical agency, but, strangely enough,

* Voyage in Search of La Pérouse, vol. ii. p. 158.

† Account of the Cape of Good Hope, 'Pinkerton's Voyages and Travels,' vol. xvi. p. 107. ‡ See Mr. Oldfield, loc. cit. p. 255.

§ Travels in Southern Africa, vol. ii. p. 195.

|| Wm. Howitt's 'History of Discovery in Australia, etc.,' vol. i. p. 412.

** Ibid. p. 367. †† Ibid. p. 261. ‡‡ Loc. cit. p. 217.

animal drawings of a very similar character are found in South Africa, in caves that have been inhabited by the Bosjesmans,* and, in addition to these drawings, according to Barrow,† "several crosses, circles, points, and lines were placed in a long rank, as if intended to express some meaning; but no other attempt appeared as the representation of inanimate objects."

It is somewhat remarkable that, as Sutherland points out,‡ "paintings in colours, almost as vivid as the day they were first laid on," exist in the caves of Adjunta, which at one time appear to have been occupied by the Bheels, one of the wild aboriginal peoples of the Indian continent. This writer thinks these paintings are too Egyptian in character to be attributed to the Bheels, but there is no weight in this objection, now that the Hottentot has been connected with the Copts, if it be true, as he asserts, that "the resemblance between the Bosjesman and the Bheel of India cannot escape observation by any person who has seen even individuals of each variety." That a certain affinity existed between the ancient Egyptians and some of the peoples of India is unquestionable, and that there is no improbability in the idea of a similar relation being established between the Bheels, or other aboriginal inhabitants of India, and the Hottentots, is evident from the connection which has been shown to exist between the latter and the aborigines of Australia. Pickering states § that he met with

* Fleming's 'Southern Africa,' p. 184.

† Travels into the Interior of Southern Africa, vol. i. p. 240.

‡ Memoir on the Kaffirs, etc. (Cape Town), p. 112.

§ 'Races of Man,' Bohn, p. 145.

"a 'Calcutta man,' who commanded one of the schooners plying among the Hawaiian Islands." His complexion "was 'as black as the darkest negro on board;' the features, too, were similar to those of the negro, but the hair was entirely like that of the Europeans." On another occasion, the same traveller was surprised to see, in Western Hindostan, among the Bunjarry people, who own immense droves of cattle, a woman whom he took for a negress. He was told, however, that many of them were like her, and he found that her hair was perfectly straight.* It is stated by Mr. Logan that "the peculiar pyramidal nose connects the Papuans and Australians in a very striking manner."† He adds that, "the mountainous borders of the valley of Assam and the Himalaya are occupied by allied tribes, some of which are Asianesian in almost every trait."‡ The same writer points out many customs in which the inhabitants of Asianesia agree with the aboriginal peoples of India and of the "Indo-Tibetan and Tibeto-Anam lands."§

This connection between the Asianesians and the aboriginal race of India can be traced, moreover, in their languages. Dr. Prichard says,‖ on the authority of Mr. Norris, that "the Australian dialects display some striking analogies with the Tamulian group of languages, or the idioms of the aboriginal people of Dekkan. Nearly all the general, but somewhat wide analo-

* 'Races of Man,' Bohn, p. 146.

† The Journal of the Indian Archipelago, etc., vol. iv. p. 322 *n.*

‡ Ibid. p. 310. § Ibid. p. 333, *et seq.*

‖ Physical History of Mankind, vol. v. p. 277.

gies which I have observed between the Australian and the Polynesian belong also to the other class of dialects; and there are others between the Tamulian and the Australian which are more striking." Although Mr. Logan is of opinion that "the relations of the Australian to the Tamulian *exclusively* are few," he fully recognizes their fundamental affinity when he says * that, "the Australian shows more decided evidences of having passed through, not a Tamulian medium, but an earlier, and perhaps more western one, to which the Tamil was also akin, than the other Asianesian languages." This writer has shown that the Australian and Tamulian systems of numeration are the same,† but he refers them *both* to an African source. It is the existence of this African element, which is "strong and abundant in India, and the countries between it and China," and the influence of which "embraced the whole Indian Archipelago, Australia, and Papuanesia," Mr. Logan especially insists on.‡ Of the primitive African era, the most characteristic traits in the Indian Archipelago are to be met with in Australia and Papuanesia, while in the Philippine Islands traces are seen of a later transition period.§ We have in this the explanation of the affinity discovered between the Tagála and the Malagasy languages,‖ and of the agreements presented by the Australian aborigines and the peoples of South Africa.

A writer in the 'Encyclopædia Britannica,'** some

* The Journal of the Indian Archipelago, etc., vol. iv. p. 420 *n.*

† See, as to this, Maury's 'Indigenous Races of the Earth,' p. 75.

‡ Loc. cit. pp. 318, 310. § Ibid. p. 313 *n.*

‖ See Ibid. p. 325 *et seq.* as to the African affinities of the Madecasses.

** Article "Language."

time ago, said that "there are some points of coincidence between the language of the Madagascar, and those of the Malays, the Philippine Islanders, the Beetjuana Cafres, and the Corona Hottentots." This remark is true, and, when taken in connection with the statement of Mr. Logan as to the position of the Australian language, it may lead us to look for points of affinity between the latter and the Hottentot dialects. Their grammatical structure has undoubtedly much in common, and a comparison of their vocabularies, specimens of which are given in the Appendix, reveals clearly that they are not without verbal connection. It is necessary, however, when comparing these languages, to bear in mind the judicious remark of Dr. Prichard, when speaking of the relation between the Australian and Tamulian dialects.* "It must be remembered," says he, "that there is a great diversity of words in the Australian dialects, compared with each other, and, therefore, we can hardly expect to find that they have preserved with so remote a language as the Tamulian a likeness which they have lost among themselves." There need be little surprise, then, if the verbal affinities between the Australian and the South African dialects be very few, and the wonder rather is that, considering the vast period of time which must have elapsed since these aboriginal peoples were in contact, any such affinity should be discoverable.

* Physical History of Mankind, vol. v. p. 277.

CHAPTER VI.

THE ANTIQUITY OF MAN—*continued.*

THE facts which have been cited in the preceding chapter sufficiently establish the existence of many curious and important points of relationship between the African peoples and those of the Indian Archipelago and the Pacific Ocean. This relationship has been extended also, so as to embrace continental India; and it can hardly be doubted that the agreements that have been discovered between these peoples are evidence of the existence of a former period, when they were all members of one great family. A writer who has been already several times referred to, says:*—"If we abstract from Africa all that she owed to the higher development of Egypt; blot out from the Asiatic region of the Mediterranean and the northern shore of the Indian Ocean, the Phœnician, Hebrew, Arabian, Assyrian, Babylonian, and Iranian civilizations; from India all she owed to the

* The Journal of the Indian Archipelago, vol. iv. p. 291.

Aryan race, and from the region between the Bay of Bengal and China all that it derived from Iranian India and from China,—we have an older and far wider development which is nearly the same throughout. That it embraced the tribes in which the higher developments afterwards took place, is evident from their retaining many of its traits. In the general character of the more active human developments of this era, we find almost a dead level, not of the negatives of which the lowest ethnic stage consists at present, as it has always done, but of positive social forms of a barbarous nature." The same writer adds:*—"It appears to be hardly doubtful that all the shores of the Indian Ocean were surrounded by races in this stage before the seeds of a higher civilization germinated on the basins of the Nile and the Euphrates." As this remark is applicable also to the numerous and distant islands of Oceanica, it cannot be surprising if traces of this early phase of development are found on the American continent. Many customs practised by the African peoples are in fact found in various parts of the so-called New World. Among them Mr. Logan enumerates† tatooing, tribe-marks, mode of burying the dead, the tabú on women for long periods after childbirth, disregard of female chastity before marriage, interdictions on women as to food, etc., avoidance by men of mothers-in-law, or of other female relatives, initiatory ceremonies, tabús on articles of food on death of chief, interdictions of words entering into name of chief and consequent use of new words, fetishes,

* The Journal of the Indian Archipelago, vol. iv. p. 292.

† Ibid. p. 329.

shamans, human sacrifices, cannibalism, tutelary animals and plants of tribes, etc.

Many of these customs are found among the Australian aborigines, and Pickering, indeed, says,* that as the former are strictly in the "hunter state," they "can only be compared with the hunting tribes of America." He adds, however, that "the parallel is not very obvious," an opinion in which Captain Wilkes appears to agree, although he says † that the Australians approximate, in their language, to the American Indians. It is undoubted, nevertheless, that there are, as pointed out by Sir George Grey, ‡ remarkable coincidences between certain Australian institutions and those of some of the American tribes. It would, in fact, appear that the Asianesian peoples have representatives on the American continent.

Dr. Knox, indeed, was evidently of this opinion. He says: §—"At the extremities of this long and singularly-shaped continent, it seems to me that two other races, which may be termed polar or arctic, exist: to the north, we are certain that the Esquimaux differ essentially from the red Indian; and in the south, it is possible that the miserable dark-coloured population wandering on the outskirts of the Land of Fire, are not Red Indians, but a race analogous to the Australian, and to the former inhabitants of Van Diemen's Land." The officers of the United States Exploring Expedition were struck with the resemblance between the Fuegians and the Chinooks

* 'Races of Man,' Bohn, p. 142.

† Narrative of the United States Exploring Expedition, vol. ii. p. 185.

‡ See Prichard's 'Physical History of Mankind,' vol. v. p. 268 *n*.

§ Races of Man, 2nd edit. p. 255.

of North-Western America;* and as to the latter people Dr. Pickering says,† "The first appearance of the Chinooks differs so much from that of the aboriginal tribes of the United States, that it was difficult at first to recognise the affinity." The Chinooks appear to have some likeness to the Esquimaux, and the same remark has been made with reference to the Fuegians.‡ Dr. Pickering draws attention to the fact, that the *dog* is found among the tribes at the extreme point of South America, and he says, "The use of the dog as a beast of burden in the far north, is possibly connected with the aboriginal introduction of the animal into the American continent.§ From whence it was introduced is as great a mystery as the means by which it reached the islands of the Pacific or the Australian continent. Some of the Chinooks wear a ring through the septum of the nose; others trinkets in the ears; and some have "the face fancifully marked with lines of soot, somewhat after the pattern of New Zealand tatooing."‖ They make mantles of vegetable fibre like those of New Zealand, and the African institution of slavery is established among them, and among their more northern neighbours. Dr. Pickering refers to the traditional northern origin of the "Aztecas" of Mexico, and to several particulars in which they agree with the Chinooks and the Indians of Oregon.** This traveller classes all these peoples with the Mongolian race, but he admits the pre-

* See Dr. Pickering's 'Races of Man,' Bohn, p. 10.

† Ibid. p. 19.

‡ Voyages of the 'Adventure' and 'Beagle,' by Fitzroy, vol. iv. p. 143.

§ 'Races of Man,' Bohn, p. 18. ‖ Ibid. p. 16. ** Ibid. p. 34.

valence in Mexico of a Malayan element, and he refers to the opinion of other travellers, that there is "a large admixture of the negro race," which he thinks, however, may have reference to the "Malayan stock." Captain Wilkes says of the California Indians, that they had a strong resemblance to the Polynesians "except that the nose was not so flat, and their colour rather darker."* He adds that their hair is thicker than that of the northern Indians, and that "one of them was observed to have stuck in his head a long pin or small stick, like that so much in use among the Fijis." Dr. Pickering is of the same opinion, as to the Polynesian affinity of the Californians, and he gives many particulars in which these peoples agree;† among them *tatooing*, traces of which were met with among the Chinooks.

This similarity of appearance and of customs, between the Polynesians and the natives of the western coast of America, was confirmed by Mr. Ellis.‡ Dr. Pickering goes still further, however, and he states that "a variety of Polynesian customs are mentioned in the accounts of the native tribes of Panama and Central America, and even some coincidences in the names of places around the Mexican and Caribbean Seas."§ Mr. Ellis has affirmed that some of the American dialects contain words found also in the language of Tahiti, and Humboldt showed that the grammatical structure of the Polynesian and American dialects had certain features in com-

* The United States Exploring Expedition, vol. v. p. 185.

† 'Races of Man,' Bohn, pp. 104, 108.

‡ Polynesian Researches, vol. ii. p. 46.

§ 'Races of Man,' Bohn, p. 113.

mon.* According to Pickering—who seems to think that what he calls the "Malay" race is more widely spread in Mexico and South America than is generally supposed — the American languages may be divided into the *soft*, with apparently the vowel termination; and the *hard*, with terminal consonants; and he apparently considers that all the former have Malayan affinities.† On the other hand, M. D'Eichthal declares that there is a complete difference between the grammatical system of the Polynesian, and that of the American languages. On a comparison, however, of the vocabularies of the Polynesian dialects with that of the Carib, this writer has come to the conclusion,‡ that between these languages there are "Quelques concordances de mots parfaitement établies, et qui sont d'autant plus importantes, que l'existence de toute concordance de cette nature avait été formellement niée entre aucune des langues polynésiennes et des langues américaines." This Polynesian affinity extends also to the language of the Guarani of South America, the great family to which, according to D'Orbigny,§ the Caribs belonged, and M. D'Eichthal has, moreover, shown it to exist between the Guarani and the dialects of the Indian Archipelago.‖

If the details which have been collected in the preceding chapter have established a relationship between the

* See M. D'Eichthal's 'Études,' in the 'Mémoires de la Société Ethnologique' (Paris), vol. ii. part i. p. 226.

† 'Races of Man,' Bohn, p. 114.

‡ See Mém. de la Société Ethnologique (Paris), vol. ii. part i. pp. 261, 268.

§ Ibid. p. 253. ‖ Ibid. vol. i. part ii. p. 115.

African and Polynesian races, the affinity which has been discovered between the latter and the peoples of America must extend to the former also. Sutherland, on what ground does not appear, says that "the Bosjesmans appear to bear the strongest resemblance to the people originally inhabiting the district situated in the isthmus of Darien," and he further likens the Hottentots to the inhabitants of the coast of Labrador, and the Cafres to the Patagonians.* The presence of frizzly-haired individuals among the Fuegians had already been noticed by Captain Fitzroy,† who ascribed the phenomenon to Polynesian influence. It would seem, however, that there are tribes on the South American continent having much in their appearance and customs analogous to those of the African peoples. In the list of the tribes of the Amazon given by Mr. Markham,‡ are mentioned the *Juris*, whose hair is "curled so closely as to resemble the African woolly head," and who practise tatooing; the *Macús*, whose hair is wavy and almost curly, and whose mode of life seems to closely resemble that of the Bosjesmans; the *Muras*, who are described by Bates as the lowest and most debased of all the Amazonian tribes, and who have crisp and wavy hair; and the *Orejones*, a savage tribe, with very broad faces and thick lips, whose language is "nasal, guttural, and spoken with great velocity." There are, moreover, the *Remos*, a savage and warlike tribe of the Ucayali river, who are described as "fair, their faces rounder than those of other tribes

* Memoir on the Kaffers, etc. (Cape Town) p. 111.

† Voyages of the 'Adventure' and 'Beagle,' vol. ii. p. 176.

‡ Transactions of the Ethnological Society (London), vol. iii. N.S.

of the Ucayali, their eyes like Chinese, and their stature very short—a description which would answer for the Bosjesmans. The *Zaparos*, whose physiognomy is said to resemble that of the Chinese, are described as "short of stature, but robust, with round faces, small angular eyes, broad noses, thick lips, and little beard." Their language is "copious, simple in grammatical construction, somewhat nasal and guttural." Probably not only these tribes, but also those who, like the *Ticunas*, bury their dead in large earthen jars, or like the *Uaraycus*, the *Omaguas*, and other Amazonian tribes, prove "the fortitude of the youths by scourging them, and of the maidens by hanging them in a net and smoking them," are intimately related to the great Africo-Asianesian family.

It may perhaps be said that the affinities of these South American peoples connect them with the Polynesians or Papuans, much more closely than with any African tribes. The same remark, however, cannot be made of other South American tribes, such as the Caribs, who have, nevertheless, certain Polynesian affinities.* Various writers have pointed out the resemblances between the Caribs and various African peoples, both in manners and appearance. A late writer,—after referring to the opinion of Bryan Edwards, that the Caribs are an entirely distinct race from the other Indians, widely differing from them in physical appearances and manners, and that they are in reality of African descent,—says that he had himself come to the same conclusion from independent observation, and he adds that "their general

* See *ante*, p. 204.

appearance and features, notwithstanding their straight, shining hair, gave me the idea more of the African than the American Indian."* This writer not only refers to several customs which the Caribs have in common with the African tribes, but he gives various words which appear to be the same in this American language and in several African dialects. However improbable this conclusion may at first sight appear, it derives support from the researches of other writers. In the language of the Guaranis, who are intimately related to the Caribs, the jaguar is called *yagouretti* (*yagouar*), a name which, in the form of *jagerri*, is applied by the Foulahs to the lion. So the name for the tiger is *halimaho* in the Foulah,—rendered *melaho*, *machan* in the dialects of the Indian Archipelago,—and *mehaï* in Guarani.† We see another analogy of the same kind in the name of the ostrich, which in Foulah is *ndau*, and in the language of the Guaranis *niandou*.‡ These agreements cannot be the result of mere coincidence, and the writer from whom they are derived has found other points of affinity between the Guarani and the dialects of North Africa no less striking. A paragraph in which one of these is referred to, is so suggestive as to deserve, notwithstanding its length, to be quoted. "Le radical *ap*," says M. D'Eichthal, "par une exception qui, si elle n'est pas unique, est certainement très-rare, se représente avec une signification identique dans les quatre princi-

* 'Ethnological and Philological Essays,' by James Kennedy, LL.B., p. 36.

† See M. D'Eichthal, in 'Mémoires de la Société Ethnologique' (Paris), vol. ii. part i. p. 270.

‡ Ibid. vol. i. part ii. p. 115.

paux dialectes de l'Amérique du sud. *Apo* en chilien, *apu* en Quichua et en Aymara, veulent dire *chef*, et *api* veut dire *chef* et *tête* en Guarani. Or, ce même radical reparaît dans le Copte avec une signification identique et une forme qui l'est à très-peu près : *ape, aphe* veulent dire en Copte *chef* et *tête*, et, ce qui est remarquable et prouve que ce mot avait une valeur en quelque sorte sacrée, c'est qu'on le retrouve aussi dans l'*apex* des Romains, avec la signification d'une coiffure sacerdotale, mais aussi avec celle de *sommet* et de *suprématie*. Or, on sait que les Romains avaient reçu des Étrusques un grand nombre de leurs ornements et de leurs rites religieux. . . . D'un autre côté, l'étude des monuments et des ruines étrusques, étude qui a tant fait de progrès depuis quelques années, ne laisse plus aucun doute sur les rapports intimes qui ont existé entre les Étrusques et les anciens Égyptiens, soit que ces rapports aient été la conséquence de simples relations commerciales, soit qu'ils aient été le résultat de l'établissement de colonies égyptiennes dans l'Étrurie. Ainsi, suivant toutes les vraisemblances historiques, l'*apex* romain ou étrusque dérive de l'*ape* égyptien, et celui-ci ne serait lui-même que l'*api, apu, apo* de l'Amérique du Sud. Il est à remarquer que ce dernier radical est très-probablement le même qui se retrouve dans *poho, oupohe, aopo*, noms de la tête dans les dialectes polynésiens."* Well may this writer add, "Une conservation si parfaite, à un si grand intervalle de temps et de lieu, est une circonstance fort extraordinaire et que nous ne savons comment expliquer."

* See M. D'Eichthal, in 'Mémoires de la Société Ethnologique' (Paris), vol. i. part ii. p. 271.

Several other agreements between the Coptic and Guarani are pointed out by M. D'Eichthal, but the most curious affinity he has traced is that between the Coptic and the language spoken by the widely-extended North American tribes, known under the collective name of the Lénapé-Algonquine. The conclusion which this writer has come to after a comparison of the vocabularies of these languages and that of the dialects of the Indian Archipelago may be best stated in his own words. "Nous avons dit," says M. D'Eichthal, "que les Lénapés, d'après le témoignage même de leurs traditions nationales, avaient habité autrefois la partie occidentale de l'Amérique du Nord. Entre cette région et l'Égypte il y a un intermédiaire naturel dans l'Archipel Indien. Eh bien, dans les langues de cet archipel, nous croyons reconnaître des vestiges indubitables du contact des Lénapés-Algonquins. Tout à l'heure, entre l'Amérique du Sud et l'Égypte, nous avons trouvé un chaînon dans la Polynésie; cette fois nous en trouvons un autre, entre l'Amérique du Nord et l'Égypte dans l'Archipel Indien."* Notwithstanding the opinion which Dr. Prichard appears to have held,† that the analogies pointed out by M. D'Eichthal are mere coincidences, the conclusions arrived at by this writer seem to be incontrovertible. He shows that even some of the numerals of the Lénapé-Algonquine have a clear affinity with analogous numerals in Coptic,‡ and also that these languages have several curious grammatical resemblances. When we consider the mystery which still en-

* Mémoires de la Société Ethnologique (Paris), vol. ii. part i. p. 279.

† See 'The Natural History of Man,' p. 304. ‡ Loc. cit. p. 286.

velops the origin of the Celtic peoples, the reason given by Dr. Prichard for doubting the conclusions drawn by M. D'Eichthal—the existence of verbal analogies between the Celtic and the Lénapé-Algonquine—carries with it but little weight. If the Eastern origin of the Celtic nations be established, they are thus brought almost into contact with the ancient Egyptians, and it may be that affinities may yet be traced between the Celtic and the Coptic, as it has been traced between the latter and certain Indo-European languages on the one hand, and the languages of Northern Asia on the other.*

There is another Africo-American affinity pointed out by M. D'Eichthal which is of equal importance with those already mentioned. The *Jolofs* of Senegambia are described by Golbery † as having "des rapports communs aux autres races nègres. Leurs cheveux sont crépus et laineux, leur nez est un peu arrondi, leurs lèvres un peu grosses, et ils sont insouciants et paresseux." Notwithstanding that they are thus real negroes, their character is, according to this traveller, "si doux, ils sont si disposés à l'ordre, à la civilisation, ils ont en eux un penchant si marqué pour la bienveillance, qu'on pourrait conjecturer qu'ils descendent d'une colonie de ces anciens Éthiopiens dont Hérodote a dit qu'ils étaient les mieux faits de tous les hommes, et dont le caractère était si bon, qu'Homère les appelait irréprochables." Between the language of this negro people, who claim for themselves a noble and ancient origin, and that of

* Mémoires de la Société Ethnologique (Paris), vol. ii. part i. p. 272 *n.*

† Ibid. p. 292.

the Caribs of South America, M. D'Eichthal has established various points of affinity.* The result of the comparison made by this writer between these languages is that "le Ouolof possède un certain nombre de radicaux et quelques formes grammaticales qui n'ont de correspondances dans aucune langue Africaine, et qui correspondent au contraire, et parfois de la manière la plus précise, à des radicaux et à des formes grammaticales appartenant à la langue Caribe." The opinion that the Caribs have at a far distant period had some connection with Africa or its peoples, would appear to be confirmed by the fact pointed out by M. Berthelot in his 'Histoire Naturelle des Canariens,' that "plusieurs noms de lieux, de races ou d'individus, qui appartiennent à l'ancienne langue de ces îles, se retrouvent d'une manière plus ou moins identique dans des noms *Caribes* du pays de Vénézuela."†

A most striking confirmation of the view taken by M. D'Eichthal of the primitive connection between the Caribs and the Jolofs, may be drawn from the ingenious inquiries of M. l'Abbé Brasseur de Bourbourg, as to the relation between the primitive histories of Mexico and Egypt.‡ This writer, examining into the origin of the *Cariens* of Asia Minor, identifies them with the Berbers, Barbars, or Varvar of North Africa, and the Etruscans of Italy, and shows, from a comparison of their cosmogonies, traditions, and customs, that they are of the same race as the Cariens, "qui passaient, à l'époque de

* Mémoires de la Société Ethnologique (Paris), vol. ii. part i. p. 302 *et seq.*

† Ibid. p. 308.

‡ See the Essay preceding the 'Relation des Choses de Yucatan' (Paris), 1864.

la découverte du continent occidental, pour les plus belliqueux et les plus civilisés de l'Amérique centrale, et dont le nom se répète dans des centaines de noms de peuples et de lieux, d'un bout à l'autre de l'Amérique tropicale, avec le même sens que lui donnent, dans l'Asie, les philologues anciens et modernes."* It is with the Carians, whose origin is, according to M. Renan, "un des problèmes les plus importants et les plus obscures de l'ethnographie ancienne," and who, as M. l'Abbé Bourbourg says, "ont rayonné sur tous les points du globe," that the ancient Egyptians appear to have had a closer relationship than with any other peoples of the Old World.† The origin of the Egyptians has ever been as great a mystery as until recently was the source of the "great river of Egypt," but it is one which recent researches must go far to solve. According to the writer just referred to, ancient traditions "nous montrent les Égyptiens, nouveaux venus dans leur pays, et conquérant le sol sur les races noires d'où l'Égypte tirait son nom, et qu'ils refoulèrent au midi pour s'établir à leur place." Tradition does not, however, tell us whence these invaders came, nor can we judge by "old" world analogies; but if we cross the Atlantic, "nous reverrons immédiatement réunies toutes ses particularités que nous chercherions vainement à découvrir dans l'Égypte aujourd'hui, excepté dans les peintures de ses nécropoles: nations rouges ou cuivrées, sans barbe; nous les retrouverons, non dans quelques provinces isolées, mais dans la plus grande partie de l'Amérique. Pour soixante pyramides que l'on

* See Introduction to 'Relation des Choses de Yucatan,' p. 52 *et seq.*

† Ibid. p. 102.

a découvertes en Égypte, on en aura mille au Mexique, et dans l'Amérique centrale ; là, on trouvera des sculptures, des livres, des tombeaux, des monuments de toute espèce qui rappelleront sans cesse l'Égypte, et, en bien des lieux, en voyant une pauvre femme indigène, revêtue de son costume de fête, on croira se trouver en présence de la déesse Isis elle-même."*

The facts which have been referred to in the preceding pages as proving relationship between various peoples of Africa, Asianesia, and America, are too numerous to be explicable as mere coincidences.† They seem, indeed, to prove, not only that the dark races of Africa have at some distant period been associated with the aboriginal tribes of Papuanesia and Polynesia, and even of America and India, but also that they have sprung from a common origin. It still remains, however, to ascertain how this primitive dark race became scattered over the whole of the Southern Hemisphere. Of the various theories that have been framed for explaining this curious phenomenon, those which assume extensive oceanic migrations are the most generally accepted. These theories have chiefly had reference to the spread

* See Introduction to 'Relation des Choses de Yucatan,' p. 49.

† See the 'Journal of the Royal Asiatic Society,' vol. xii. p. 478, for an observation by Mr. B. H. Hodgson as to certain analogies between the *Quichua* language of South America, and the *Tamulian* dialects of India. Compare also the *Quichua* numerals given in the Appendix with those of the *Lénapé-Algonquine* and the *Coptic;* and those of the language of *Guatemala* with the *Hottentot*. The last-named language has certain analogies of grammatical structure with the *Quichua*, especially in the formation of nouns from verbal roots. See also Barton's 'New Views of the Origin of the Tribes and Nations of America' for evidence of affinity between certain American languages and those of Northern Asia.

of population over the Pacific, but the peculiar ethnological position of Madagascar cannot be left out of sight, and the view taken of those migrations depends on the view entertained as to the race affinity of the inhabitants of that island. The opinion which at first sight appears to be the most probable, is that the streams of migration have flowed from east to west, taking their rise on the American continent and passing through Polynesia to the islands of the Indian Archipelago. A strong argument in support of this view is adduced from the fact that the language of Polynesia has exercised great influence over the dialects of the Archipelago; and that, as M. D'Eichthal asserts,* "la Polynésie a aussi donné à l'archipel des instruments, des plantes et des animaux utiles. Mais elle-même n'en a reçu aucun en échange." This opinion as to the easterly origin of the Polynesians is also entertained by Ellis, who asserts not only that the winds would favour their passage, and that "there are many well-authenticated accounts of long voyages performed in native vessels of both the North and South Pacific;" but also that the traditions of some of the inhabitants "afford the strongest evidence of these islands having been peopled from those to the eastward."† This view is the one received by the generality of French writers. M. D'Eichthal cites the authority of two voyagers whose opinions must have great weight. Of these M. Moerenhout says, "Tout s'accorde pour détruire la supposition si longtemps accréditée que la migration aurait eu lieu de l'ouest à l'est; et toute personne qui

* Mémoires de la Société Ethnologique (Paris), vol. i. part ii. p. 96.

† Polynesian Researches, vol. ii. p. 11.

connaît ces mers regardera la chose comme absolument impossible."* M. Dumont d'Urville, who gives priority to Tahiti as the primitive centre of Polynesian migration, supposes it to have had a westerly direction,† and he comes to the conclusion, after comparing the Malayan and Polynesian languages, "que ces deux idiomes proviennent d'une langue plus ancienne, *dont le polynésien offre le rameau le plus pur.*"‡ Judged by the test of language, the Polynesian migration must have extended as far as Madagascar, which the last-named writer considers its further limit towards the west, an opinion in which Mr. Ellis appears to concur,§ although M. D'Eichthal, as will be seen from the preceding pages, supposes it to have reached to the western side of the African continent.

This view, which ascribes to the great stream of migration in the Southern Hemisphere a westerly flow, is not, however, without opponents. Dr. Pickering cites facts which prove that a migration from west to east is at least *possible;* and in explanation of the existence of dark peoples, of what he calls the "Malayan" type, on the east coast of America, he says,‖ "In attempting from any part of Polynesia to reach America, a canoe would naturally, and almost necessarily, be carried to the northern extreme of California; and this is the precise limit where the second physical race of men makes its appearance." This writer seeks for the starting-point

* See Mémoires de la Société Ethnologique (Paris), vol. i. part ii. p. 179.
† Ibid. p. 184. ‡ Ibid. p. 187.
§ See 'Three Visits to Madagascar,' pp. 460, 466.
‖ 'The Races of Man,' Bohn, p. 297.

of migration in the Indian Archipelago, an opinion which was long since expressed by John Reinold Forster,* and more recently by such inquirers as Mr. Williams and Mr. Hale, the former of whom — judging from the supposed identity of "the Bulotu or Purotu of the Tongan and Samoan islanders, a large island to the north-west, where their race originated, and where the souls of the deceased nobles and matabulais live as gods," with Buru, one of the Amboyna group—considers "it within the bounds of probability that this is the spot in the Indian Archipelago from which the Polynesians emigrated."† This view has been in some measure confirmed by the researches of Mr. Logan, who says that "the great repository of the Polynesian habits is the Moluko-Timorian or south-eastern extremity of the Archipelago, from which the principal Polynesian population has undoubtedly been derived."‡ Nor is this western origin of the islanders of the Pacific inconsistent with the fact of their being ignorant of various arts and objects which distinguish the civilization of the Indian Archipelago. All these peoples have much in common, and that which the *latter* alone possess may be due to an influence of a more recent date than the period to which the diffusion of the peoples of the Pacific must be referred. Mr. Logan, after stating that the Asianesian tribes possess characteristics in common not only with many tribes of both Africa and America, but also

* Observations made during a Voyage round the World, p. 280 *et seq.*

† See Mr. Logan's Memoir on "The Ethnology of the Indian Archipelago," in the 'Journal of the Indian Archipelago,' etc., vol. iv. p. 254.

‡ Ibid. p. 337.

with the most ancient of the peoples of Europe and Asia, adds, "The very fact of so wide a range of positive relations leads to one important conclusion at the outset, viz. that the ethnology of Asianesia must illustrate that of every other region of the world, and that its antiquity is probably as great as that of the oldest existing tribes on any of the continents. The insular tribes can be as little derived from any of these as they can be from each other."* This writer appears, indeed, to consider that the Polynesians are allied more especially to the Tibeto-Indian family of the Himalayas, whose peculiar type "has not been more completely preserved in the Gangetic basin itself than amongst the earlier Malayu-Polynesian tribes."† The Tibeto-Indian is the second great family whose influence has been felt throughout the islands of the Eastern seas, and according to Mr. Logan the Polynesians would appear to have been severed from connection with them "at a comparatively early period of the Tibeto-Anamese migrations, but after they had predominated in this part of the Archipelago."‡ It should not be forgotten, however, that this continental influence was not purely "Gangetic," as Mr. Logan terms it. The African element, which was spread so universally from Africa to Polynesia, was strongly established in the Indian peninsula, and the Tibeto-Indian element cannot have been free from its influence. It may be true that "the African elements have gradually been softened, and many of them expelled, in the principal races of the western part

* 'Journal of the Indian Archipelago,' etc., vol. iv. p. 310.

† Ibid. p. 344. ‡ Ibid. p. 314.

of the Archipelago, by the continual influx of Tibeto-Anam influences in later epochs, when the latter were themselves considerably changed by a higher civilization." This writer admits, nevertheless, that "in Polynesia the Indo-African element remains strong, not only because the company or companies that gave it a Tibeto-Anam population were carried eastward and isolated before later civilizations reached Indonesia, but because the Tibeto-Anam races themselves, throughout their Indian and Transindian locations, were at that early era still deeply imbued with the old barbaric development."*

Supposing it to be true, as Mr. Logan seems inclined to believe, that the primitive "African" influence did not penetrate *directly* among the islands of the Pacific, there are facts which render it highly probable that it was the strongest element in the migration which reached Polynesia from the Indian peninsula. This writer himself asserts that "we must go to Australia and Papuanesia to understand the character of the Indo-African era of the Archipelago,"† while in the Philippine Islands, where Dr. Prichard, following Wilhelm von Humboldt, would place the centre of its development, we have an example only of a later transition period.‡ It is, however, with the Australians and the Papuas that the Polynesians must be identified. Many of the facts quoted in the preceding pages strongly support this opinion, and

* See Mr. Logan's Memoirs on "The Ethnology of the Indian Archipelago," in the 'Journal of the Indian Archipelago,' etc., vol. iv. p. 332.

† Journal of the Indian Archipelago, vol. iv. p. 313 *n*.

‡ Ibid. p. 253.

a late writer asserts that "there is an overwhelming weight of testimony that all the oceanic tribes of Polynesia belong to the same race"* as the black tribes of Papuanesia, and if this be so, they must also have been deeply affected by the primitive African element. M. Lesson does, indeed, appear to have been of opinion that the Indian Archipelago was occupied by the Polynesians before the Papuas migrated to it †—a migration which, according to Mr. Brayley,‡ had its origin in those regions of continental India in which Mr. Logan places the home of the Polynesian race. Even according to this view, therefore, these several peoples may be of the same stock, a notion which a comparison of their customs renders almost certain. The Polynesians,§ like the Australians,‖ refer disease to the operation of evil spirits. With both, various animals are "roonda," or forbidden, probably from a similar belief as to a connection between them and certain departed spirits. Among the Australians the "kobong," as they term it, extends to plants as well as animals, while among the Polynesians, not only are hogs thought to have souls, but the same was said of plants and flowers.** It is curious that the banyan-tree, which is venerated from Africa to Australia, possesses a sacred character in the islands of the South Sea.†† Sir George Grey relates, in his vocabulary of the dialects of South-Western Australia, that

* 'The Geographical Distribution of Mammals,' by Andrew Murray, p. 63.
† Prichard's 'Physical History of Mankind,' vol. i. p. 250.
‡ London and Edinburgh Philosophical Magazine, 1832, vol. i. N. S. p. 468.
§ See Ellis's 'Polynesian Researches,' vol. i. p. 121. ‖ See *ante*, p. 177.
** Ellis's 'Polynesian Researches,' vol. ii. p. 53. †† Ibid. p. 171.

certain stars are supposed to have formerly been black men, and the same belief is held by the Polynesians.* As with the Australian aborigines, woman occupies a position vastly inferior to man, so it is among the natives of the Pacific islands, where "the inferior food, both for wives, daughters, etc., was cooked at separate fires, deposited in distinct baskets, and eaten in lonely solitude by the females, in little huts erected for the purpose."† The cruel treatment by the Australian aborigines of their sick has its counterpart among the Polynesians, who used occasionally to bury alive not only the hopelessly sick, but also the infirm.‡

Other customs, such as circumcision, tatooing, etc., possessed by these peoples in common, could be referred to; but sufficient has been said in the preceding pages to render it highly probable that the Polynesians and the Papuanesians belong to the same race, and the question arises, by what means has this primitive people, whose physical appearance, manners, and language claim for them an African kinship, if not lineage, become separated by so vast a distance from the African members of the common stock? The mode of migration by which the islands of the Pacific are supposed to have been peopled, is of course equally applicable to explain the larger phenomenon; and, in fact, it has been called in to account for the existence in Madagascar of what is said to be a Polynesian element. The existence of this element has been asserted by most modern writers,§

* Ellis's 'Polynesian Researches,' vol. ii. p. 415.

† Ibid. vol. i. p. 226. ‡ Ibid. vol. ii. p. 282.

§ See Ellis's 'Three Visits to Madagascar,' p. 460 *et seq.*

although they cannot deny the African affinity of a large portion of the aborigines of Madagascar, and these writers account for its presence by voluntary or involuntary migrations from the Malayan Archipelago across the Indian Ocean.* Notwithstanding the weight of authority, and a tradition to this effect which the Hovas profess to possess,† it cannot be doubted, now that the more general affinity between the Asianesian and the African peoples has been established, that the Polynesian affinity of the Madecasses has not had the origin supposed. If the Madecasses—for the distinction made between the Hovas and the other inhabitants of Madagascar cannot be sustained—originated in the Indian Archipelago, so must not only all the Ethiopic, but also the negro tribes of the African continent.

The fact is, that if there have been migrations across the Indian Ocean they have proceded from west to east, rather than from east to west. Thus M. Lesson derives the Papuas of New Guinea from Madagascar, and other writers suppose them to have sprung from East Africa.‡

The ablest advocate of this view is, however, Mr. Logan, who, instead of discovering a Polynesian element in Africa, asserts that "in many of the less altered and ruder Indian tribes everywhere, and amongst the civilized tribes of South India and South Asia, there is a great substratum of an earlier development, which is entirely African in its spirit, and in many of its characters."§

* See Mr. Logan's Memoir in the 'Journal of the Indian Archipelago,' vol. iv. p. 257.

† See Ibid. p. 327, as to the origin of the *Hovas*.

‡ Ibid. p. 256.

§ Ibid. p. 318.

This writer adds, that there was "a later archaic African character, with strong Syro-Egyptian traits, directly received from the shores of Eastern Africa and Arabia, and diffused over India, Transindia, and Asianesia," and reaching, as he appears to think, even Japan, Mexico, and Peru.* Although this latter view must be preferred if the universal prevalence of a common primeval character, which has been established, were due to oceanic migrations, it is still open to doubt, whether this extension of the "African" element may not have been due to some other cause. It is very uncertain whether, in the primitive age to which those migrations must be referred the African peoples had the facilities for effecting them. There does not appear to be any evidence of the existence, at that period, of a system of navigation such as we might suppose to be necessary for such a purpose. Mr. Logan, indeed, asserts that "navigating tribes" then existed, but he gives no reason in support of the assertion, beyond saying that "otherwise they could not have spread themselves over every habitable island of the eastern ocean from Madagascar to the Fiji group, if not throughout Polynesia also."† Their having done this by navigation is, however, the fact to be established, and this writer himself admits‡ that it must have been in the earliest stage of navigation—that of "fishing-canoes," and even he seems to suppose the migrations were the involuntary ones of "castaways." It may be true that "reduce the proportion of race-producing castaways as we may, the lowest will suffice to

* See Memoir in the 'Journal of the Indian Archipelago,' vol. iv. p. 319, and *n*. † Ibid. p. 293. ‡ Ibid. p. 319.

people all the shores and archipelagoes of the Indo-Pacific Ocean;"* but there is no evidence that such a result has ever ensued, and it is by no means so satisfactory an explanation of the phenomenon in question as to render it unnecessary to inquire whether a better one cannot be discovered. Mr. Logan does, indeed, suggest that "there may have been African and Indian maritime powers before the southern Semitic people extended themselves to the Himyaritic region,"† borrowing the art of navigation from their kindred tribes on the Mediterranean. Such an early African navigation has, in fact, been recently insisted on by a writer already referred to in connection with the identity of certain peoples of Africa and America.‡ M. de Bourbourg, after referring to the account given by Diodorus Siculus of the founding of Babylon by Belus, says, "Ainsi les Chaldéens, les maîtres de Babylone, cette race de prêtres étrangers, devenue la noblesse du pays, était bien d'origine Libyenne et occidentale, et, ce qui est plus significatif, sortie de l'Atlantique, ainsi que l'indique le nom de Neptune."§ This maritime people belonged to the wide-spread Carien race of which M. Bourbourg finds traces not only in Asia and Europe, but also in a great part of the American continent. M. D'Echstein calls the Cariens "premiers dominateurs de la mer,"‖ and M. Bourbourg says, "Quelles que soient, d'ailleurs, les causes de la décadence de la navigation antique, il n'en

* 'Journal of the Indian Archipelago,' vol. iv. p. 273.

† Ibid. p. 290. ‡ See *ante*, p. 211.

§ 'Relation des Choses de Yucatan,' Introduction, p. 103.

‖ Ibid. p. 61.

demeure pas moins établi que les peuples qui nous apparaissent aujourd'hui comme les principaux navigateurs, dans les siècles passés, étaient les peuples de la race de Cham, et en particulier les Cares. Des Cares, cette science passa aux Phéniciens et aux Étrusques: mais déjà elle avait perdu de son caractère d'universalité."*

The extension of the worship of the gods *Macares* throughout the maritime nations of the Mediterranean, those bordering on the Indian Ocean, and in America,† shows the remarkable influence the Cariens must have had in the ancient world, but it proves also that at this period human inhabitants had already overspread the globe, and therefore the earliest migrations of the human race must have been long antecedent to that period. We are still, therefore, compelled to suppose these migrations to have been the involuntary ones of fishermen, drifting over the waters of the Indian Ocean, and cast away on its distant shores. There is, however, another point to consider in relation to the mode by which man has been enabled to wander so far from his primitive seat. The aborigines of Australia are undoubtedly the most degraded of all the races of mankind, and they, with the Papuas, represent the earliest or "Indo-African era of the archipelago." Mr. Logan, however, observes that "the local position of the Australian race affords a presumption that they preceded the Papua tribes," the most important and influential of which, he thinks, "came directly from Africa."‡ As to the Australians

* 'Relation des Choses de Yucatan,' Introduction, p. 108.

† Ibid. p. 61.

‡ 'Journal of the Indian Archipelago,' etc., vol. iv. p. 320 *n*.

and inferior Papua tribes, this writer supposes them to have had a continental origin—originally "derived immediately from India or through Transindia." According to this view, Southern Asia would appear to have been the primitive seat of the early "archaic African element," which Mr. Logan asserts to have been "common to Asia, Africa, and, in a considerable degree, to America;" and agreeing with it, he supposes this element to have been transmitted "from the first to the two last."* It is difficult to understand whether this writer supposes the primitive Indian people, to whom the Australians were allied, to have been the stock from which all the African peoples have sprung. It would almost appear to be so, notwithstanding that his reference to an "era when Africa, South-Western Asia, and India formed one ethnic region," would perhaps justify us in believing that, in his opinion, this region had already been overspread before "the early archaic African character" was transmitted from Southern Asia to the continents of Africa and America. It seems incongruous, however, to speak of an "African" influence emanating from India; and we may well imagine that the peculiar position occupied by the Australian race, has appeared to Mr. Logan to render it necessary to refer the origin of the *kindred*, and therefore the most primitive, phase of development, to an Asiatic rather than to an African source.

According to Mr. Logan's view of the general prevalence of the primitive archaic element, we must seek for its origin in the neighbourhood of the Australian

* 'Journal of the Indian Archipelago,' etc., vol. iv. p. 319.

continent,—seeing that the lowest phase of development is found there,—unless we refer it to that continent itself. This latter view would probably not be entertained by any of the writers who explain the spread of the human race by early oceanic migrations. It may be asked, however, whether such migrations are necessary to explain the phenomenon in question. The existence of kindred peoples spread over the vast expanse of the Pacific Ocean has, indeed, been explained on a wholly different hypothesis. M. Moerenhout, struck by the primitive character of the Polynesians, and the fact of their complete isolation in every respect from all the rest of mankind,—"ignorant tout l'univers, ils se croyaient eux-mêmes, avec le peu d'animaux qui les entouraient, les seuls êtres organisés, et les uniques habitants de ce monde,"—assigns to them a local origin. He asserts that the Malays are the descendants rather than the fathers of the Polynesian race, which "a eu son foyer primitif sur un continent situé à l'est de la mer Pacifique."* The same idea was entertained by M. Dumont d'Urville, who asks, "Quand on réfléchit attentivement à cette étonnante similitude de traits physiques, de coutumes, d'idées religieuses et de langues entre les peuplades polynésiennes; similitude telle que ces insulaires paraîtraient plutôt appartenir aux provinces d'une même nation, qu'à des archipels séparés par d'immenses intervalles de mer; quand on considère en même temps la diversité singulière qui règne entre les tribus des îles occidentales; enfin, quand on songe que nulle part, ni

* Cited in the 'Mémoires de la Société Ethnologique' (Paris), vol. i. part ii. p. 180.

à l'est ni à l'ouest de la Polynésie, on ne retrouve de régions qu'on puisse regarder, avec quelque apparence de fondement, comme le berceau des peuples polynésiens; ne serait-il pas plus simple de supposer qu'un continent ou grande île, comme l'Australie, dut jadis occuper une portion de l'Océanie, habitée par un peuple dont les tribus polynésiennes ne sont que des débris échappés à quelque grande convulsion du globe?"*

M. D'Eichthal appears willing to entertain the same opinion,† which, so far as it refers to the former existence in the Pacific of large tracts of land now submerged, is confirmed by the researches of later inquirers. Mr. Wallace ‡ divides the inhabitants of the Malayan or Indian archipelago into "two very strongly contrasted races,"—the *Malays*, "who inhabit almost exclusively the western half of the archipelago, and the *Papuans*, whose head-quarters are New Guinea, and some of the adjacent islands." With the latter race Mr. Wallace classes the Polynesian tribes of the Pacific, of whom he says: §— "The descriptions of these latter often agree exactly with the characters of the brown indigenes of Gilolo and Ceram; and, moreover, it is to be remarked that the brown and the black Polynesian races have much in common." The conclusion this writer arrives at is that "the brown and the black, the Papuan, the natives of Gilolo and Ceram, the Fidjian, the inhabitants of the Sandwich Islands and of New Zealand (and perhaps

* Cited in the 'Mémoires de la Société Ethnologique' (Paris), vol. i. part ii. p. 189. † Ibid. vol. ii. part. i. p. 235.

‡ See Transactions of the Ethnological Society (London), vol. iii. N. S. p. 199. § Ibid. p. 211.

even of Australia), are all varying forms of one great Oceanic or Polynesian race."* Now, it is remarkable that a line dividing this Papuan or Polynesian from the Malayan race, nearly coincides with a deep belt of ocean which divides the archipelago into two separate geographical regions. "From Asia, on the one side," says Mr. Wallace, "and from Australia, on the other, stretch out immense submarine banks, which connect the adjacent islands to the mainland; while beyond the limits of these banks an unfathomable ocean is always found."† In confirmation of this view, the same writer says, that "in the western islands all the chief forms of animal life of the Asiatic continent correspond; while in the eastern half, we have chiefly those characteristic of Australia." To the former region belong the Malays, and to the latter the Papuas, from whom has sprung the Polynesian race. The wide spread of the latter race Mr. Wallace explains, on the supposition of "the existence at a comparatively recent period (geologically speaking) of a Pacific continent, or at least of far more land than now exists there." In support of this view, various arguments are drawn from the geological movements which have, at a comparatively recent date, taken place, or which are now progressing in the Pacific. Mr. Wallace very justly concludes, that "if we accept this view, we need no wonderful migrations in various directions on stormy oceans, we need no power to introduce rapid changes of physical and mental form."‡

* See Transactions of the Ethnological Society (London), vol. iii. N. S. p. 212. † Ibid. p. 197. ‡ Ibid. p. 213.

This opinion as to the former existence of a great continent between Asia and America, agrees in some measure with the traditions of the Society Islanders;* but, nevertheless, it is quite consistent with the primitive seat of the Polynesian race having been on the eastern margin of the Indian archipelago, from which there may have been a double set of migrations, an earlier one by land, and a later by sea. For the former, the existence of a large tract of land now submerged would be required, and we have evidence of it in the fact, that, while the great islands of Sumatra, Java, and Borneo, were at one time united to the Asiatic continent, New Guinea and the Arru islands once formed part of the Australian continent. Mr. Earl has shown that what he terms "the great Asiatic bank," extends for a distance of nearly 1000 miles from the extreme south-east of that continent, almost touching the Celebes, while the great Australian bank reaches to New Guinea.† Some writers, indeed, appear to give a yet greater extension to the primitive Australian continent, so as to embrace Norfolk Island, New Caledonia, and the New Hebrides.‡ It may be that even this limit was exceeded, as the Fijians, who are the most distant representatives towards the east of the primitive Papuan race, have a tradition that they were created in Fiji, and did not migrate from another land;§ unlike the other Polynesians, whose traditions

* See Ellis's 'Polynesian Researches,' vol. ii. p. 50.

† Contributions to the Physical Geology of South-Eastern Asia and Australia, pp. 4, 7.

‡ See Von Buch, quoted in Mrs. Somerville's 'Physical Geography,' 5th edit. p. 164.

§ 'Polynesian Researches,' by W. T. Pritchard, p. 395.

are perhaps valueless, as they point to both these sources for their origin.* It is in the distribution of this black race, as distinguished from the lighter tribes of Eastern Polynesia, we shall find the strongest evidence of great geological changes having taken place since man first appeared on the earth.

It might be thought an easy matter to decide the race affinity of a people so near to India, and apparently so accessible, as the inhabitants of the Andaman Islands. Nothing, however, appears to be more difficult. Pickering, on the evidence of "concurrent accounts," refers them to the *Negrillo* race, "which seems also to be present in the Malayan peninsula, if not in Sumatra."† The same opinion was evidently held by Mr. Earl, who classes the Semangs of the peninsula and the Andaman islanders with the Papuas.‡ From Mr. Crawfurd's description of the Andamaners,§ we must suppose him to have originally arrived at a similar conclusion, which would appear to be confirmed by the fact of their language, described as "soft and full of vowels," not having any intermixture of Malay words.|| The Papuan origin of this black people seems also to be required by Mr. Brayley's theory of an extension of the Australian race, not only into the Archipelago and the Indian Peninsula, but also into Ceylon.** This writer, however, after the opinion expressed by Professor Owen, appears to be doubt-

* Ellis's 'Polynesian Researches,' vol. ii. pp. 40, 42, 51.

† 'Races of Man,' Bohn, p. 179.

‡ The Native Races of the Indian Archipelago.

§ Grammar of the Malayan Language, p. 158.

|| Ibid. p. 170. ** See *ante*, p. 219, and the reference there made.

ful as to the exact racial affinity of the Andamaners;* while Professor Busk goes so far as to assert that they are "a diminutive Malay race."† Finally, Professor Owen, with whom Mr. Crawfurd seems to concur, declares that this people have no special race affinities, and he suggests that they have "come from *nowhere*."‡ This expression is explained by Professor Owen, when he says that "geologists had conceived that the islands on the south of the present great continent of Asia might be remnants of some antecedent, very distinct group of land; and naturalists . . . had brought to their knowledge a host of facts confirmatory of the idea that Ceylon was not a dismemberment of India, but part of a distinct and antecedent continent." According to this view, then, the Andamaners are representatives of an old race, which has almost disappeared with the continent which it inhabited.

But may it not be that the Papuas of the Indian Archipelago and of Australia, with whom so many ethnologists identify the Andamaners, are also remnants of this primitive people? The same question, moreover, must be asked in relation to the Madecasses, and those peoples of the African continent to whom they are related, especially the Hottentots, who, like the Andamaners, are generally said to have come from *nowhere*. It is somewhat curious that Mr. Brayley, who seeks a continental origin for the Papuas, says, "There is one circumstance, however, in the natural history of these people, and that

* See Letter in the 'Medical Times' for 1862, vol. i. N. S. p. 491.

† Ibid.

‡ Proceedings of the Royal Geographical Society, vol. vi. 1861–62, p. 45.

one of equal difficulty and interest, which, it must be acknowledged, would still remain unexplained,—namely, the strong resemblance, as well mental as physical, which the lowest of the Papuan race, in intelligence, and in the scale of humanity in general (the natives of Van Diemen's Land, for example), bear to the Hottentots of Southern Africa."* This is an important admission, and the difficulty it raises can be met only by the supposition—which the facts set forth in the preceding pages have been accumulated in proof of—that the space now containing the Indian Ocean was, at some period long since past but during the human epoch, occupied by dry land, which connected the continents of Africa and Australia with southern Asia, and with each other. This notion is consistent with the opinion expressed by Professor Owen, and the same view has been entertained by a late writer, who, after citing various facts to prove that the Papuas and the African negroes possess many traits in common, says,† "The submerged continent alluded to by Professor Owen, at some time or other, not all at one time or in the same direction, but from time to time, and with breaches of continuity which interrupted communication between various parts of it, probably included all the oceanic Archipelago, Papua, Australia, Africa south of the Sahara, East India south of the Himalayas, the Indian Ocean, the Bay of Bengal, Burmah, Siam, the Malay Peninsula, Cochin

* The London and Edinburgh Philosophical Magazine, 1832, vol. i. N.S. p. 469.

† 'The Geographical Distribution of Mammals,' by Andrew Murray, p. 68.

China, part of China, and the whole of the Philippine Islands, Borneo, Java, and Sumatra." That this vast extension of land was ever perfectly continuous is perhaps improbable. It is well ascertained that at various points in the Southern Hemisphere the land is rising, whilst at others it is sinking, and doubtless a similar phenomenon existed during the continental epoch of the Southern Hemisphere. That the Southern Hemisphere has passed through such an epoch is admitted by most geologists, and that the human period had commenced prior to its termination would appear to be no less certain, judging from the facts which have been cited as to the distribution of the dark races of mankind. Mr. Murray has pointed out that while the range of the African negro race towards the north is limited by the Sahara, the northern limit of the black Papuan race is found on the margin of the deep sea barrier which divides the Papuan province from that of the Malays.* Although an elevation of 300 feet would unite New Guinea with Australia, and the islands of Java, Borneo, and Sumatra with the Asiatic continent, yet these two great divisions would still be separated by a deep channel. It is to the south and east of this channel that the black peoples of Asianesia are found, as it is south of the Sahara the negro race of Africa is located. The fact, however, of there still remaining on the Asiatic continent remnants of a primitive black race, may lead us to suppose that the Papuan province was united to Southern Asia during the human period, and

* 'The Geographical Distribution of Mammals,' by Andrew Murray, p. 60.

it may be that the extension of the Australian continent to the Fiji Islands, where that race is also found, existed during the same epoch. The present distribution of man in the Southern Hemisphere would be explained, therefore, on the assumption that, after he had overspread the primitive continental area, changes took place in the elevation of various portions of it, resulting in the separation of the Papuan province from the mainland, and from the islands of the West Pacific. The Asiatic continent would, however, still remain joined to the great islands of the Archipelago, while Australia and New Guinea were also united; and probably during this period the Malayan race arose on the former, and from the northern part of the latter issued the Polynesian migrations which have peopled the islands of the Pacific. Doubtless, since this latter event, those further depressions have taken place, which have separated the islands of the Archipelago from the mainland, and divided Australia and New Guinea.

The fact of the Polynesian peoples having originated in the Indian Archipelago is important, as it brings them nearer to the Indian Ocean, which is thus shown to be the great centre round which the primitive dark races of mankind are clustered, justifying us in viewing it, in the words of Mr. Logan,* as "a single ethnic basin." There are, however, certain facts connected with other peoples besides the great "African" family, which tend to prove that this ethnic basin has been a yet more important centre of human origin than has been hitherto supposed. It has been declared by an eminent living philologist

* 'Journal of the Indian Archipelago,' etc., vol. iv. p. 330.

that African languages must be classified by type; and that while such languages as the Coptic and Berber are, on the one hand, connected through the Fellatah, Mandingo, and Woloff, with "the most negro languages of the whole continent," on the other hand, they advance in the opposite direction towards the Hebrew and Arabic.* The truth of this statement receives ample confirmation from the presence of certain physical and other characteristics, which connect the peoples of East Africa with the Semitic family. Dr. Rüppel divides the inhabitants of Abyssinia into two classes,—those of a European type "having a countenance and features precisely resembling those of the Bedouins of Arabia," and those who are identified, "so far as physical traits are concerned, with the race which he has designated under the name of Ethiopian."† Prichard, after referring to this division, continues:—"This last principal type . . . is precisely the character of physiognomy which, by Larrey and most other writers, is described as the prevalent type of the Abyssinian countenance. Baron Larrey in particular, who has entered very fully into the physical history of these races, describes one type as common to the Coptics, or native Egyptian race, the Barábra, or Berberines, and the Abyssinians; and he separates this by a broad line from the character peculiar to the negro races, and by almost as broad a line from that of the Arabian."‡ Some evidence has been furnished in the preceding pages, from which it must be inferred that there is no such absolute division between the Ethiopian and negro

* Dr. Latham in the Encycl. Brit., art. "Language."

† See Dr. Prichard's 'Natural History of Man,' p. 284. ‡ Ibid. p. 285.

peoples as here supposed; and, on examination, it is found that the line of separation between the Ethiopian and Semitic peoples is no less undefined. Captain Speke, in his account of the curious pastoral people, the Wahŭma, found near the sources of the Nile, gives various reasons for believing the Abyssinians and their southern neighbours, the Galla, to be of the same race.* Of the latter, Prichard, on the authority of Dr. Rüppel, says, "The Galla are one of those almost woolly-haired races, with round faces, obtuse and thick features, thick lips, and dark complexions, who, in Eastern Africa, fill up the transition from the Syro-Arabian type to that of the western negro."† In this class must undoubtedly be placed, notwithstanding that there are marked points of distinction between them and the Wahŭma of Speke, the barbarous pastoral peoples of the valley of the Nile, described by Sir Samuel Baker.‡ The same must be said, not only of the Somali, the Danakil, and other kindred tribes of the neighbourhood of the Red Sea,§ but also of the Masai and other tribes of Zanzibar, referred to by Captain Speke; whilst if the Ethiopic affinities of the Cafres be established, they, with all the cognate tribes of South Africa, must be included in the same class. Prichard says, "Notwithstanding the wide differences in physical character between these natives of the intertropical coast of Africa and the Amakosah, and other southern Kafirs, it seems probable that they are branches of one race."‖ Lichtenstein was, indeed, of

* Journal of the Discovery of the Source of the Nile, p. 246, *et seq.*

† Natural History of Man, p. 291. ‡ See the 'Albert N'Yanza.'

§ See Pickering's 'Races of Man,' Bohn, p. 210, *et seq.*

‖ Physical History of Mankind, vol. ii. p. 299.

opinion that all the native tribes to the southward of Quiloa were of the same stock;* thus almost connecting the Cafres of the south with the Ethiopians of the north. The description given by Isenberg† and other writers‡ of the Galla, shows them to agree in many particulars with the Cafres, and, indeed, Isenberg says expressly that in religion these peoples resemble each other.

The position assigned to the Abyssinians as a connecting link between the Nigritian and Semitic peoples renders it desirable to consider, with more attention, the race affinity of the latter. A late distinguished traveller asserts that the fact of the great bipartition of the Arab race is clear,§—the Ismaelitic branch being found in the north, and the Kahtanic in the south. As to the latter, Mr. Palgrave says, "The Kahtanic race furnishes the link between the Arab and the Abyssinian, joining hands with the white or fair families of mankind on the right, and with the dusky or black on the left." He adds, "These gradations, namely of the northern or Ismaelitic Arab, of the southern or Kahtanic, and of the Abyssinians, are, in spite of individual or local exceptions, often the result of anomalous circumstances, distinctly marked out by corresponding shades of manners, intellect, and associations, no less than by the physical features of skin and muscle. In this series the Kahtanic

* Physical History of Mankind, vol. ii. p. 295.

† See Prichard's 'Natural History of Man,' p. 289.

‡ See Pickering's 'Races of Man,' Bohn, p. 219, *et seq.*

§ 'Narrative of a Year's Journey through Central and Eastern Arabia,' by William G. Palgrave, vol. i. p. 352.

Arabs, are, so to speak, nearer related to the negro than are the Ismaelitic tribes; and hence more readily admit Africans to fellowship, intermarriage, and civil rights, nay, even to government,—a fact which has not escaped the discerning eye of Niebuhr." The ancestor of the Kahtanic branch is the acknowledged founder of the Arab race, and his descendants alone are entitled to the name of "Arabs," in the "strict and ancestral sense."* The primitive seat of this family appears to have been in Yemen, and in close contact with it, at a very early period, we find another people, the Himyarites, who "became ultimately masters of a large portion of the peninsula, and founded a kingdom remarkable for its extent and comparative durability."† According to Mr. Palgrave, the Himyarites, who are now found chiefly in Hadramaut and the southern coast of the peninsula, were Abyssinians; in confirmation of which he affirms, on native authority, that the Abyssinian language is spoken by the "dusky tribes of the 'Mahra,' who have preserved to the present day the archaic form of their mother-tongue."‡ Supposing the African origin of the Himyarites to be established, the fact remains that the Arabs and Abyssinians have much in common. Mr. Palgrave himself supposes that the Kahtanic Arabs were of African origin, "though referable to a still more ancient date" than the Himyarites.§ This opinion accords with tradition, which makes Himyar "a great-grandson of Kahtan, and a younger brother of Saba, the

* 'Narrative of a Year's Journey through Central and Eastern Arabia,' by William G. Palgrave, vol. i. p. 455. † Ibid. vol. ii. p. 241.
‡ Ibid. p. 239. § Ibid. p. 241.

famed Yemanee monarch."* It is true that Mr. Palgrave distrusts this tradition, on the ground that a difference between the Himyarites and the Kahtanic Arabs "obtrudes itself both in complexion and language." It may be observed, however, that complexion is of little importance in such an inquiry, and as to language, this writer himself observes that the dialect he met with in the south was of "the ancient, or indeed primeval" form of Arabic, whose roots, less seldom than that of the modern dialect, coincide with those of Hebrew or Syriac, "peculiarities which harmonize with the anterior southern, perhaps African, origin assigned it by historical tradition, before the epoch of Ismael, and the immigration of the northerly tribes of Hejaz."†

If we now turn to the Hebrews, we shall find still further reason to recognize a strong African element in the Semitic peoples. The Hebrew affinity of the Abyssinians has long been known, but its explanation has hardly as yet been attempted. The phenomenon itself struck Dr. Prichard so forcibly, that he considered these peoples as "branches of one nation." He would have supposed an Ethiopian origin for the Jews, if "we had not convincing evidence to the contrary, and knew not for certain that the Abramidæ originated in Chaldea, and to the northward and eastward of Palestine."‡ Professor Max Müller, indeed, supposes the Gheez language of Abyssinia to have been transplanted from Arabia.§

* 'Narrative of a Year's Journey through Central and Eastern Arabia,' by William G. Palgrave, vol. ii. p. 240. † Ibid. p. 133.

‡ Natural History of Man, p. 278.

§ Lectures on the Science of Language, 1st series, p. 268.

This opinion is far from satisfactory, however, as it would require an Asiatic origin, not only for the Abyssinians, and for the Berbers of northern, and the Haussas of central Africa, but even for the Ghás, a negro people of the Cape Coast, all of whom have Semitic affinities, either in language or customs. Of the Ghás, Dr. Latham says, on the authority of Mr. Hanson, that they exhibit unequivocal and "numerous *well-marked Jewish characters* in their religious and other ceremonies."* Dr. Latham very justly remarks, when referring to the so-called "Jewish" customs of the Falashas of Abyssinia, that these peculiarities are *African* also, and he asserts that the Semitic affinity of so many of the North African languages "is one of the many phenomena which break down the broad line of demarcation that is so often drawn between the Semitic and the African nations."† The conclusion which Dr. Latham has come to on this important point requires to be cited. It is "that such phenomena, *i. e.* points of similarity with Semitic nations, are the rule rather than the exception with the African tribes—negro and *non*-negro; a fact which makes the Jews, Arabs, and Syrians, African, rather than the Africans Semitic."‡ The former is the more rational opinion, and according to it alone, or rather to that which would derive all these peoples from a common source, can certain difficulties connected with the origin of the Hebrews be got rid of.

Dr. Prichard, while affirming that the customs and habits of the Abyssinians "display a nearer resemblance

* Natural History of the Varieties of Man, p. 477.

† Ibid. p. 500. ‡ Ibid. p. 477.

to the manners of the ancient Hebrews than to those of the modern Arabs,"* suggests, in another place, that the language of the Himyaritic inscriptions, which appears to be closely related to the Gheez, was the idiom of the Cushite Arabs, who were a more ancient people than the Kahtanic Arabs, and "more nearly related to the Phœnicians or Canaanites, both being Chamite and not Shemite nations."† The Hamitic origin of the Canaanites or Phœnicians cannot be doubted,‡ and it is now no less clearly established that the Hebrew was in reality the language spoken by the Phœnicians.§ According to this view, however, the Israelites would appear to have belonged to the Hamitic stock; unless, indeed, as some writers suppose, they abandoned their primitive Aramaic language for that of their Canaanitish neighbours.|| If, however, the Israelites had a Chaldaic origin, as the writer of the Book of Genesis asserts, no such change of language was necessary, seeing that the Chaldæans belonged to the same Hamitic stock as the Canaanites, the former being undoubtedly a Cushite race.** It may be said, however, that the primitive element in Chaldæa was Semitic, the Chaldæans being an intruding race, and that it was from the primitive stock the Hebrews sprang. This hypothesis, however plausible, still requires the Hebrews to have lost their original

* Physical History of Mankind, vol. ii. p. 150.

† Natural History of Man, p. 143.

‡ See Smith's 'Dictionary of the Bible,' article "Shemitic Languages," p. 1254. § Ibid. article "Phœnician," p. 862.

|| Ibid. article "Hebrew," p. 770.

** Ibid. article "Chaldæans," p. 294.

language after their settlement in Canaan. Another difficulty, moreover, presents itself in the fact that the Phœnician language is in reality a Semitic tongue,* requiring, according to the received opinion as to the Hamitic affinity of the Canaanites, that the latter, as well as the Hebrews, should have changed their primitive language. The only mode of getting rid of these complications is by supposing that "all these Hamitic nations spoke languages which differed only dialectically from those of the Syro-Arabic family."† From this it would follow, not merely that there was a blending of Semitic and Cushite population, but that these peoples were fundamentally the same. Probably the truth is, as affirmed by Rawlinson, that "either from ancient monuments, or from tradition, or from the dialects now spoken by their descendants, we are authorized to infer that at some very remote period, before the rise of the Shemitic or Aryan nations, a great Scythic (=Hamitic) population must have overspread Europe, Asia, and Africa, speaking languages all more or less dissimilar in their vocabulary, but possessing in common certain organic characters of grammar and construction."‡

So far as the Semitic nations are concerned, if their relationship to the Abyssinians or other Ethiopic peoples of northern Africa be once established, it must be extended to the whole Hamitic race. At a preceding

* See Smith's 'Dictionary of the Bible,' article "Phœnician," p. 861.

† Ibid. article "Shemitic Languages," p. 1254.

‡ Ibid. It is curious that the Namaqua-Hottentot name for God, as given in Tindall's Vocabulary, is *Elo*-p, evidently the same word as the Hebrew *Eloh*.

page,* it was shown that there is great probability of the close affinity of all the tribes of the eastern side of the African continent, but there are certain special points of resemblance among these tribes and even the Madecasses and the Semitic peoples, well worthy of more particular attention. This is particularly observable in matters of religion. Among the Sherarat Bedouins of North Arabia, "sacrifices, in which sheep or camels are devoutly slaughtered at the tombs of their dead kinsmen, are of frequent occurrence."† This practice, which is still found also in Omān,‡ is similar to the ancestor-worship of the Bechuanas and the Madecasses.§ Associated with it, among the Arabs, is the veneration for certain trees,‖ a superstition which has its counterpart in the veneration for the banyan-tree mentioned by Livingstone,** and in the worship by the Gallas of the sacred tree on the banks of the Hawāth, referred to by Isenberg.†† Notwithstanding these superstitious notions, there has from time immemorial been among the Arabs, as among the Bechuanas,‡‡ an absence of gross idolatry, combined with a general, although an apparently uninfluential, belief in "one Supreme Being, Author of all, and Ruler of all."§§

A more positive proof of the agreement of the Arabian character with that of the African peoples, is seen in

* See *ante*, p. 236.

† Palgrave's 'Journey through Central and Eastern Arabia,' vol. i. p. 10.

‡ Ibid. vol. ii. p. 316.

§ See *ante*, p. 160.

‖ Palgrave, op. cit. vol. i. p. 225.

** See *ante*, p. 181.

†† See Prichard's 'Natural History of Man,' p. 290.

‡‡ See 'Natural History of Man,' by Rev. J. G. Wood, vol. i. p. 183 *et seq.*

§§ Palgrave, op. cit. vol. i. pp. 249, 250.

the prevalence of a gross fetichism throughout the whole of the peninsula.* The existence of this fetichism is usually ascribed to the influence of the negro element among the population, but Mr. Palgrave's opinion is doubtless correct when he says,†—"The allusions of some old Mahomedan writers might lead us to imagine that somewhat of this perversion is really the indigenous growth of the Eastern Arab peninsula, and that it existed prior to and independent of African importation; though certainly increased and deepened by the latter." This opinion is confirmed by "the absolute and half-religious confidence which well-educated Arabs show to the physician, whom they regard as possessed of an almost sacred and supernatural power,"‡—reminding us of the "medicine man" of the African tribes,—and by the peculiar influence ascribed to medicines, which are supposed to act as "charms," rather than as natural remedies. Polygamy, combined with the inferior place assigned to women, and the slight regard paid to female chastity, furnish other points of agreement between the inhabitants of the Arabian peninsula and the African peoples; while we see in the practice of first partaking of coffee before presenting it to the guest, a relic of the custom found in all the African tribes§ of tasting food, under similar circumstances, to guard against poison. To these may be added the practice of circumcision, and the pastoral character of the Arabian and Ethiopian tribes; both of which are points of great importance,

* Palgrave, op. cit. vol. i. p. 250. † Ibid. vol. ii. p. 273.

‡ Ibid. vol. i. p. 160.

§ See Du Chaillu's 'Explorations in Equatorial Africa,' p. 439.

but too well known to require further notice. Nor are the analogies of language undeserving of mention. The copiousness, especially in words expressive of the various qualities of objects, and the great number of forms taken by the verb, which are characteristic of Arabic, are equally striking in the Sechuana* and the Malagasy† languages; while in both these languages have been discovered verbal affinities with the Arabic.‡

Casual reference has been made in the preceding pages to certain points of resemblance between the Cafres and the Hebrews. The description given by Casalis of the Basutos often reminds us forcibly of the Israelites; and Fleming, among other arguments, asserts of the Cafres, not only that they have prophets of the same character and calling as those of the Hebrew Scriptures, but that "we find them still, from tradition, not only reverencing, but actually observing, many of the rites of the Mosaic law."§ Among these rites are circumcision, the abstaining from the flesh of the unclean animals forbidden to the Hebrews, and a system of purification and of ablutions.|| There is no wonder, therefore, that certain writers should seek for an Israelitish origin for the Cafres and other kindred tribes of South Africa; but the customs of the Madecasses have so much in common** with those observed among the Cafres, that if such origin were proved, it would be required for

* Casalis, 'Les Bassoutos,' p. 335 *et seq.*

† Ellis's 'Three Visits to Madagascar,' p. 465 *et seq.*

‡ Ibid. p. 463; and Fleming's 'Southern Africa,' p. 240.

§ 'Southern Africa,' p. 265.

|| See Casalis, 'Les Bassoutos,' p. 270. ** See *ante*, p. 160

both these peoples. The editor of 'Drury's Adventures in Madagascar' was struck with the analogies observable between many customs of the Hebrews and those of the Madecasses; but so far from deriving the latter from the former, he shrewdly conjectures that the Hebrews were indebted to the Madecasses for several of their religious ceremonies.*

That there is nothing impossible in the idea of some connection between the ancient Hebrews and the inhabitants of Madagascar, may be gathered from the considerations advanced in the preceding pages. It has been suggested that the pastoral tribes of the African continent had their origin in that island,† and if the Hamitic affinity of the Hebrews and other Semitic peoples be established, there is no reason why they should not be traced to the same, or at least a neighbouring, source. A writer in the 'Encyclopædia Britannica' relates‡ that "according to an Arabic legend, Yemen was separated from the opposite coast of Abyssinia by a tremendous earthquake, which caused the waters of the Indian Ocean to enter the Red Sea. Many thousands of people were drowned, and such were the lamentations of the survivors, that the new channel was called Babelmandeb, or the gate of tears." There may be some truth in this tradition, for it is undoubted that at one time not only was Arabia connected with Africa, but India also. Mr. Murray says,§ "We may safely infer that a great continent stretched across between Africa and India. The

* Preface, p. 9, edit. 1807.

† See *ante*, p. 165.

‡ Article "Arabia."

§ The Geographical Distribution of Mammals, p. 29.

numerous shoals in the Indian Ocean are one indication of this, but a much more important one is the fact of the fauna of India and Africa belonging, with few exceptions, to the same families," and to families peculiar to those two districts.

One of the most curious facts connected with this distribution of the Indo-African fauna is the presence of the Zebu, or Indian ox, not only on the African continent, but also in the Arabian peninsula and the island of Madagascar—in fact in all those countries which are inhabited by the pastoral Semitico-Ethiopic peoples bordering on the shores of the Indian Ocean. M. D'Eichthal dwells particularly on this fact when treating of the origin of the Foulahs of northern Africa, who he declares received the ox, either directly or indirectly, from India.* It is certainly remarkable that all the pastoral peoples of Africa, including even the Cafres and the Madecasses,† should possess the Indian ox; but what is of more importance still is, that with all these peoples, as was mentioned at a preceding page,‡ this animal has a more or less sacred character. Even among the Semitic peoples the ox retained somewhat of this character; for, although with the Arabs the camel has taken its place as an object of sacrifice, yet it was thus valued by the Israelites, and the golden calf set up in the wilderness, together with the prohibition from killing any *clean* animal, except as an offering to God, contained in the law,§ shows that the superstition had not then lost its

* Mémoires de la Société Ethnologique (Paris), vol. i. part ii. p. 134.

† See 'Drury's Adventures in Madagascar,' ed. 1807, p. 280.

‡ See *ante*, p. 165.

§ See Smith's 'Dictionary of the Bible,' article "Ox," vol. ii. p. 655.

force. Nor among the inhabitants of India is the superstition connected with the ox confined to the followers of Brahma. Mr. Hodgson mentions oxen among the animals which the Bodo and Dhimáls—aboriginal tribes of the Himalayas—refuse to eat;* and, according to Sir Emerson Tennent, the Veddahs of Ceylon decline to touch the buffalo.† The absurd extent to which this curious superstitious feeling is carried, appears in the account given by Sir Samuel Baker, of the *Nuehr*, on the White Nile, who "frequently starve, existing only upon rats, lizards, snakes, and upon such fish as they can spear," although they have thousands of cattle, which their superstition will not allow them to kill.‡

Probably this superstitious veneration for the ox § has had a common origin with the almost universal custom, called among many of the African tribes *roondah*, by the natives of Australia *kobong*, and by the Polynesians *taboo*.‖ In addition to these peoples, distinct traces of a similar custom are met with among the aboriginal tribes of Hindustan** and Ceylon,†† and among the Indians of North America.‡‡ Doubtless that veneration for the goose which was almost universal among the peoples of antiquity, and is still met with among the followers of Buddha,§§ had the same origin. An ana-

* On the Aborigines of India, p. 188. † 'Ceylon,' vol. ii. p. 439.

‡ The Albert N'yanza, vol. i. p. 69.

§ See the Transactions of the Ethnological Society (London), vol. iii. N.S. p. 229, for a trace of this superstition among the aborigines of Australia. ‖ See *ante*, p. 193.

** Hodgson's 'Aborigines of India,' p. 188.

†† Tennent's 'Ceylon,' vol. i. p. 439. ‡‡ See *ante*, p. 193.

§§ Tennent's 'Ceylon,' vol. i. p. 484 *et seq.*

logous superstition is seen in the regard for the common fowl shown by the Polynesians, who sacrifice it to idols,* and by the Obbo and other tribes of the valley of the Nile, who appear to reserve it for certain superstitious usages,† while among the negroes of western equatorial Africa, as with the Polynesians, the fowl is not allowed to be eaten by the women.‡ A similar superstition is connected with the goat among many distant peoples, but no example is more curious than the veneration entertained for the crocodile. The people of Unyoro, near the sources of the Nile, will not eat the flesh of this reptile,§ while among the Basutos of South Africa, according to Casalis, "le chef de famille qui tient le premier rang dans la tribe reçoit le titre de *grand homme de crocodile,*" and none of his tribe dare touch this animal's flesh.‖ The crocodile is sacred among some of the negro tribes on the gold coast, as it was also among the ancient Egyptians;** and the Madecasses regard it as having supernatural power, and address it with prayers.†† The veneration paid to this animal by the Hindoos is well known, and Sir Emerson Tennent's remark, that the *dalada,* or "sacred tooth" of Buddhism, resembles "the tooth of a crocodile, rather than that of a man,"‡‡ renders it probable that it is merely a relic of the superstition in question. In Madagascar, crocodiles'

* Ellis's 'Polynesian Researches,' vol. i. p. 221.

† Baker's 'Albert N'yanza,' vol. i. p. 327.

‡ Chaillu's 'Journey to Ashango-Land,' p. 307.

§ Baker's 'Albert N'yanza,' vol. ii. p. 92. ‖ Les Bassoutos, p. 221.

** See Gardner's 'Faiths of the World,' article "Animal Worship," p. 116.

†† Ellis's 'Three Visits to Madagascar,' p. 297.

‡‡ Ceylon, vol. ii. p. 201.

teeth are worn as charms; "a golden crocodile's tooth being the central ornament in the sovereign's crown."* In Polynesia the shark appears to take the place of the crocodile, the large blue shark being deified,† and its teeth considered potent charms, and as such used for shaving children's heads.‡ The shark is venerated also on various parts of the western coast of Africa, and it is curious that the Australian natives do not kill this fish, nor are they attacked by it, unless the former are accidentally wounded while in the water.§

More difficult of explanation than the veneration for the crocodile and the shark, or even than serpent-worship, which has an almost equally extensive range, is the peculiar sanctity with which various peoples, widely separated, have invested the *banyan-tree*. As Sir Emerson Tennent points out, "Every ancient race has had its sacred tree; the Chaldeans, the Hebrews, the Greeks, the Romans, and the Druids, had each their groves, their elms, and their oaks, under which to worship."‖ The sacred tree of the Brahmans is the banyan; while the Buddhists have chosen a tree of the same genus, called by them the bo-tree. If Buddhism be of Indian origin, it is not surprising that its founder should have chosen a tree allied to the sacred one of the Brahmans; but how are we to account for the Polynesians also affixing a sacred character to a species of the banyan, called by them the *ava* tree, and for the same phenomenon being found among the African tribes on the Zambesi and the Shire,** among

* Ellis's 'Three Visits to Madagascar,' p. 297.

† Ellis's 'Polynesian Researches,' vol. i. p. 178. ‡ Ibid. vol. ii. p. 115.

§ Mr. Oldfield, loc. cit. p. 274. ‖ Ceylon, vol. i. p. 341.

** Livingstone's 'Zambesi and its Tributaries,' p. 188.

the negroes of Western equatorial Africa,* and even in northern Australia?† Such a fact as this cannot be accounted for as a mere coincidence, any more than can the practice of circumcision by the Semitico-African tribes and the Madecasses, in common with the inhabitants of the Polynesian islands, and the aborigines of Australia. The extensive range of these customs, with others that have been referred to in the preceding pages, is in itself strong evidence of the common origin of the various races which practise them. Mr. Ellis, indeed, judging from the traditions held by the Polynesians, and certain analogies in customs and language, appears inclined to ascribe to these people a Jewish origin.‡ For this idea, however, there is certainly not sufficient warrant, especially as the African affinity both of the Hebrews and of the Polynesians must be considered as firmly established.

The many curious points of agreement between distant peoples which have been referred to, can be explained only on the supposition that all the races who surround the great ethnic basin of the Indian Ocean, and those who, like the Polynesians, have issued from its neighbourhood, have had a common origin. This observation has, however, a still wider application; for, if the migrations of peoples in the northern hemisphere are traced back to their source, that "ethnic basin" will be seen to be the very centre around which all the races of mankind are clustered. The great Asiatic continent, and its

* Du Chaillu's 'Journey to Ashango-land,' p. 295.

† See *ante*, p. 181.

‡ Polynesian Researches, vol. ii. p. 42.

European appendage, lie to the north, Africa to the west, and Australia to the east, while America is connected with the common centre, in the south through the Polar and the Atlantic Oceans, and in the north by its contiguity to the Asiatic continent. Although the divergence of the American peoples from the other great families of mankind, and the primitive condition of their languages, attest their great antiquity, yet their many Asianesian and African affinities,* and even the structure of their languages,† prove that they cannot be absolutely separated from the other peoples who have been traced to the great Indian ethnic basin.‡ Mr. Logan has some remarks which strikingly illustrate this subject. He says, after referring to the Gangetic affinities of the Asianesian peoples, "When we scale the Himalaya and place ourselves on the great table-land of Asia, it might be supposed we would shake off all the insular characteristics. Far from it; they follow us to Tibet, and when we pass the great southern mountain chains of Middle Asia, and come to the lands of the Turk and Mongols, and, advancing to the north, arrive amongst the Siberian nations, we still recognize Asianesian traits. If we return to the southern regions and visit the most ancient Indian races, they again increase in number. When we cross the Indian Ocean and make ourselves acquainted with the tribes on its western shores, we are astonished to find that the alleged East

* See *ante*, p. 200. † See *ante*, p. 201.

‡ See Admiral FitzRoy's Observations as to an Australian and Hottentot affinities of some of the South American Peoples, in the Ethnological Transactions for 1858.

Asian characteristics, numerous and varied as they are, yield in importance to the African. If we place the greatest distance that the habitable world allows between Asianesia and the tribes with whom we compare them, we still find alliances. In Europe they meet us amongst the Finns and Laplanders, the Hungarians, the ancient Britons, the Greeks, and many other nations. In America, the Esquimaux of the north, and the Abipones of the south, and a host of other races, have striking Asianesian characteristics. In a word, the eastern islanders partake of every great ethnic development of the human race, which has yet been recognized; and if we ask of that grand recipient and preservative of ethnic influences, language, whether it cannot arrest this universal diffusion of the archaic history of Asianesia, and restrict it to a particular region, it answers that the insular languages are related to all the principal linguistic families. The alliances are by no means slight or accidental. They are substantial and essential, and can be established by a great mass of facts of all kinds. To trace every well-marked alliance to its source will be a labour of immense difficulty, and one which in many directions may never be completely successful. But the very fact of so wide a range of positive relations leads to one important conclusion at the outset, viz. that the ethnology of Asianesia must illustrate that of every other region of the world, and that its antiquity is probably as great as that of the oldest existing tribes on any of the continents. The insular tribes can be as little derived from any of these as they can be from each other. The ethnic lines of both visibly approach as they are prolonged

into the past, but, like the hyperbola and its asymptotes, they never meet."*

We have in this passage a masterly summary of the conditions of the problem to be solved, and we have in the last sentence a key to its solution, notwithstanding the apparently hopeless state in which Mr. Logan leaves it. The reason why these ethnic lines do not meet is because the common centre from which they originated has been destroyed. The now-submerged continent, by the former existence of which it has been sought to explain the affinities observed between the various races who are found surrounding the Indian Ocean, can alone have formed the primitive centre from which the lines of human migration have diverged. In whatever portion of that now watery space the first spark of human life was kindled, it gradually spread, reaching the continental area now inhabited by the Australian aborigines, who, without doubt, represent the most closely the earliest condition of man. In course of time the human tide would reach on different sides the African, Asiatic, and South American continents. The Indian Archipelago also felt the effect of these early overflows of the primitive people, and possibly before the destruction of the great continental area on which man's first appearance took place, and which destruction may have been coincident with the formation of the deep sea channel which now divides Papuanesia from the Indian province, the whole of the land in the southern hemisphere was overspread by the black race of mankind. It is impossible, however, to explain the position of several

* Journal of the Indian Archipelago, etc., vol. iv. p. 310.

of the races into which mankind is now divided, without supposing that there were several secondary centres of human origin. Such is the case with Semitico-Ethiopic peoples, who probably originated in a portion of the sub-Indian continent, lying between India and Africa, which remained above the waters after the destruction of its eastern portion. That this event took place after the divergence of the negro race is evident from the latter not possessing the ox, which, without doubt, was domesticated before the separation of the primitive pastoral peoples. The great Ethiopic family appears to have divided into several branches, which spread over North and South Africa—the Hottentots and the barbarous tribes of the Nile valley being representatives of its earliest migrations—and the countries north and west of the Persian Gulf, which themselves probably became a still later and more important centre of human development. In the East another secondary centre was formed which gave rise to the Thibeto-Annamese of Logan,* from which the peoples of Polynesia ultimately proceeded, and at a later date those of the Malayan Archipelago; while in the Indian peninsula were developed those tribes of the Tamulian type, who connect the African and Papuanesian races with the Mongolian family of peoples, and through whom probably the latter must be traced to the common source.† Again, from the Mongol race sprang the curious people

* See *ante*, p. 217.

† As to the Mongolian affinity of the aboriginal tribes of India, see Mr. Hodgson's 'Aborigines of India,' and General Brigg's Memoir, read before the British Association in 1850.

whose civilization has been so long established in the great plains of China, and who doubtless descended from the highlands of the north and west, overspreading those plains as they were gradually formed by the deltas of the rivers. Finally, in the highlands of West Central Asia, and possibly at a point where the Semitico-Ethiopic and the Thibeto-Annamese races came into contact, was formed the most important of all the secondary centres—that at which originated the great Aryan, or Indo-European race. What interminglings of peoples may have taken place in the course of these spreadings and migrations from the secondary centres of human origin we cannot say. It may be that every portion of the earth's surface then habitable was settled by primitive man before the rise of a distinct race, and probably the area occupied from some secondary centre was more than once subsequently overrun by peoples who had originated at some other centre of secondary origin.

Before inquiring whether there is any geological evidence of the former existence of the sub-Indian continent, which is supposed to have been the place of man's origin, reference should be made to certain traditions embodied in the Hebrew Scriptures. One of the most interesting of Biblical questions is, the position of that "garden of delight," in which the first human beings are said to have been placed on their creation. The solution of this question is, however, so difficult, that a late writer asserts, that "The site of Eden will ever rank with the quadrature of the circle, and the interpretation of the unfulfilled prophecy, among those unsolved, and

perhaps insoluble problems, which possess so strange a fascination."* This appears to be the now generally received opinion, and the Biblical narrative is usually treated either as simply figurative or as purely mythical. It is, nevertheless, hard to believe that such an account as this, which is so simple and exact, cannot have been intended to express an actual *fact* in human history, especially when it is considered that nearly all the nations of antiquity had a similar belief as to the existence of a terrestrial paradise.† The Persian tradition has a curious resemblance to that of the Hebrews, and Kalisch says, "the 'tree of life' has analogies in the 'king of trees,' *Hôm*, which the Persians believed to grow at the spring Ardechsur, issuing from the throne of Ormuzd, and in the tall *Pilpel* of the Indians, to which was also ascribed the power of securing immortality, and every other blessing."‡ It cannot be supposed that any of these traditions are wholly true. Nations, as well as individuals, have a natural tendency to look with false regret on the past, and to dream of a "golden age," which hitherto has existed only in their own imaginations. But even these dreams are evidence of the actual existence of the past, and in the Hebrew tradition there is another element which may have had to do with the

* Smith's 'Dictionary of the Bible,' article "Eden," vol. i. p. 487.

† See Colenso's 'Pentateuch,' etc. (1865), p. 341.

‡ See Ibid. Have we not the nearest approach to the "tree of life," and the tree of the "knowledge of good and evil," which grew in the centre of the garden of Eden, in the sacred bo-tree of the Buddhists "united in marriage with the palm"? The Palmyra palm is celebrated by the Hindus as the "Kalpa tree," or 'tree of life,' of their Paradise. See Tennent's 'Ceylon,' vol. ii. p. 520.

form they took. Not only that which is past, but that which is *lost*, is regretted, and when Adam and Eve are said to have been placed in "Eden," from which they were afterwards *driven*, it is merely a mode of affirming that the ancestors, whether of man generally or of the Semitic race, had had, for some reason or other, to leave the land of their birth, on which they looked back with wishful regret. As "primitive" man always sees supernatural agency in the striking displays of nature's forces, any catastrophe leading to this abandonment must have been considered a sign of divine anger, which would as superstitiously become associated with some incident, whatever it may have been, embodied in the tradition of the eating of the "forbidden fruit." The very fact of the "garden of Eden" not having been revisited, as the tradition implies, proves that if man ever existed there, some natural convulsion must have happened to hinder his return, and such convulsion may have caused so great a geographical change as to prevent the site of this primitive seat of man from being identified. There may, however, still be some clue by which it may be approximately ascertained. According to the Biblical narrative, the garden was "eastward in Eden," and its position is sought to be fixed by a reference to certain rivers,—the Pison, the Gihon, the Hiddekel, and the Euphrates—which had a common source in the garden. The difficulty in fixing the exact situation of Eden arises from the impossibility of finding four rivers which answer in all particulars to those here described. The identity of the rivers mentioned may perhaps be established. There is no question about the Tigris or the Euphrates, and, if

Josephus be correct, by the Gihon is intended the Nile. Kalisch says expressly, "The Arabians also include the Nile among the rivers of Eden, and the Ethiopians call it *Gejôn*, or *Gewôn*."* As to the river Pison, a late writer says, "In the narrative of Genesis the river Pison is defined as that which surrounds the whole land of Havilah. In Genesis ii. 11, 12, it is described as the land where the best gold was found, and which was, besides, rich in the treasures of the *b'dolach*, and the stone *shohom*. In these passages, Havilah seems to denote the desert region south-east of Palestine. Again, Havilah is enumerated among the Hamites as one of the sons of Cush, and in this enumeration his name stands in close connection with Seba, Sheba, and Dedan, the first founders of colonies in Ethiopia and Arabia, which afterwards bore their names. If, therefore, the Havilah of Gen. ii. be identical with any of these countries, we must look for it on the east or south of Arabia and probably not far from the Persian Gulf."† The Pison is, however, by many writers identified with the *Indus*, and Delitzsch asks, whether it is possible that the author has supposed the Indian Pison and the Nile, with the Tigris and Euphrates, to proceed out of one common source?"‡ This is both possible and certain. Their common source, however, need not be sought in Armenia, as Delitzsch supposes, but where these four rivers *would* meet if they were continued into the Arabian Sea. According to the present geographical formation of the

* See Colenso's 'Pentateuch' (1865), p. 329.

† Smith's 'Dictionary of the Bible,' article "Eden," vol. i. p. 484.

‡ See Colenso, *loc. cit.* p. 329.

countries bordering on this sea, this would be impossible, but not if that geographical arrangement were greatly altered.* The elevation or depression of a mountain range may change or even reverse the flow of all the rivers of a continent. It is curious that the spot where, according to this hypothesis, Eden, the primitive home of the Semitic race, would be placed, lies within that portion of the submerged continent which connected India with Africa, and to which the origin of the Semitico-Ethiopic peoples has already been referred, on independent grounds. It is, moreover, a curious coincidence, that Ceylon, the Indian name for which (*Langkâ*), the Brahmins say, means "a place of happiness or delight,"† according to tradition, at one time, formed a large continent, the greater part of which was overwhelmed by the sea. What is at least equally strange, the date fixed for this catastrophe (2378 B.C.) very nearly agrees with the date (2348 B.C.) now usually assigned to the Deluge of Genesis.‡ Tradition would seem, however, to place the 'continent' of Ceylon towards the east rather than to the north or west; but, nevertheless, this coincidence of time may perhaps show a connection between these two great catastrophes.

It is, indeed, worth while to consider how far the hypothesis of a former sub-Indian continent is affected by the supposition of a Noachian deluge. That this deluge,

* See Wilford's Essay on "Egypt, etc. from the Ancient Books of the Hindus," in the 'Asiatic Researches,' vol. iii. p. 338, for a tradition as to the sea having formerly extended as far as the Cataracts on the Nile.

† See Mémoire in the 'Journal Asiatique,' 5th series, vol. ix. p. 18.

‡ See Tennent's 'Ceylon,' vol. i. p. 7, *n*.

supposing it to have happened, cannot have been "universal," is now admitted by all rational inquirers, notwithstanding the *general* expressions used by the writer of Genesis. These expressions must be interpreted by the light of the fact, that the account of the Deluge is founded on tradition which originated with persons who probably thought themselves to be the sole survivors of the catastrophe; as Lot's daughters, after the destruction of the "cities of the plain," thought they and their parent were the only people remaining on the earth. We are, however, met by the fact, admitted even by Hugh Miller,* that the "tradition of the Flood" is universal, "seeing that there is scarce any considerable race of men among which, in some of its many forms, it is not to be found." It is possible that this tradition had, in some cases, a local origin, as, for instance, the destruction of the continent of which the Antilles, in the Gulf of Mexico, are the remnants, and, it may be, those great catastrophes referred to in the Mexican and Peruvian annals and embodied in their ancient cosmogonies.† There is, however, so curious an agreement between the tradition of the Macús Indians of South America, who believed that "the only man who survived the flood, repeopled the earth by *changing stones* into *men*,"‡ and that of the deluge of Deucalion, who replenished the earth in like manner, that we are almost compelled to suppose them to have had a common origin. A similar fancy as to the mode of repeopling the

* Testimony of the Rocks, p. 284.

† See Bourbourg's Introduction to 'Relation des Choses de Yucatan,' pp. 21 *et seq.* 30.

‡ See Colenso's 'Pentateuch,' p. 383.

earth is entertained by the Tamanaks of the Orinoco, but they substitute the fruit of the palm-tree for stones. It is undoubted, however, that whatever people has any tradition of a flood, the seat of it is placed in their own country.* It is thus with the Polynesians, so it was with the ancient Britons,† while the floods of the Babylonians and Persians, and of the Chinese and Hindoos, are equally localized. The only apparent exception to this rule is the Hebrew tradition, which removes the Deluge "entirely from Canaanitish soil, because the Israelites constantly retained the conviction that they had *not* originally belonged to that country." The reason why the traditions of other peoples were localized was evidently because they came to have the idea that they had originated in the country where they afterwards dwelt. Tuch remarks, that the scene of the legend of the Flood, preserved by the Israelites, "was the original home of their natural forefathers, which was to them an inheritance of primeval antiquity;"‡ but this idea as to the place of their origin was as little well founded as that of other races, and we must transfer the scene of the catastrophe, preserved in dim remembrance by the Hebrews and other peoples, to the place of their actual origin. By this process we bring all these peoples back to the great central ethnic basin of the Indian Ocean; and we have, in their traditions, evidence to support the opinion that man had his origin in countries which that ocean now covers. The catastrophe, of which there is so uni-

* See Colenso's 'Pentateuch,' p. 381.

† Ellis's 'Polynesian Researches,' vol. ii. pp. 57, 62.

‡ See Colenso's 'Pentateuch,' p. 381.

versal a tradition, may, therefore, be identified with the destruction of the sub-Indian continent, a geological change which necessarily supposes a deluge, and therefore accounts for the wide-spread traditions of such an event, while it renders the disagreements between those traditions consistent with truth. For, although this flood was not universal, still, as it was a *central* one, possibly some branch of every race then existing would be affected by it, and as the remnant of each race would escape at different points round the margin of the flood-basin, the incidents of the escape would differ with each. Cut off from all other human beings, every one of the surviving *tribes* would suppose themselves to be the only remaining inhabitants on the earth, and thus as the Semitic race thought its ancestors alone had been saved from the fury of the Deluge, so the Papua race of Australia have the same opinion as to themselves.* Most probably, before the happening of the great catastrophe, the remembrance of which is preserved by so many peoples, the southern hemisphere was nearly overspread by man, and it may be that the Hebrew tradition as to the position of man's birthplace may have been moulded by long residence, between the expulsion from Eden and the Deluge, in the place assigned to it, south of Arabia. We have, probably, in the legend as to the position of the Bulotu, or heaven, of the Tongan islanders,† a similar case, and we may therefore look for man's primeval home in a more central part of

* For a curious Australian tradition as to a great flood, see 'Transactions of the Ethnological Society,' vol. iii. N.S. p. 234.

† See *ante*, p. 216.

the submerged continent than that which the Hebrew tradition allows. The probability is, that it must be placed nearer to the Australian continent than to Africa, a view which is supported by the fact, that the Australian aborigines approach nearer than any other people to the primitive type. In this case, it may be that the Eden of the Hebrews was identical with the Lankâ of the Brahmins,* not the present island of Ceylon merely, but the traditional continent which stretched far to the southward and eastward, and which certain zoological affinities would seem to prove had, at one time, been annexed to the Australian continent.† In connection with this subject it would be interesting to inquire what is meant by the Hebrew legend of the "cherubim with the flaming sword," who drove primeval man out of the Garden of Eden. It is curious to note that the second of the three great catastrophes spoken of by Mexican traditions was caused by water, while the first was owing to volcanic action.‡ May not the same be intimated by the Hebrew legend, which sees in the fire issuing from the earth, the flaming sword of the Lord, and which seeks for the cause of the catastrophes, both of "fire" and "water," in the divine anger against human wickedness, instead of the activity of the mighty forces of nature?§

* See *ante*, p. 260. † Tennent's 'Ceylon,' vol. i. p. 272.

‡ See Bourbourg's Introduction to 'Relation des Choses de Yucatan,' p. 21.

§ Sir J. Emerson Tennent, in the second volume of his 'Ceylon,' states that a celebrated Buddhist *dagoba*, or temple, of Anarojapoora, is called "the mountain of safety,"—a name which "presents a curious coincidence with the term by which, according to Diodorus Siculus, the people of Samothrace designated the mounds erected by them to commemorate their preservation

In a preceding chapter, where it was sought to be established that there is a due relation between the "age" of any particular continent and the capacity for civilization of its inhabitants, it was shown that such age, as adduced from the geological formation of the continent in question, agrees in general with the character of its fauna and flora. Nor is this conclusion inconsistent with the affinity which undoubtedly exists between the animal and vegetable forms which are found in various parts of the earth's surface, very distant from each other. Dr. Livingstone has rather incautiously said that "Africa is the oldest continent in the world."* If this remark had been restricted to Southern Africa, it would have been near the truth, but even then it must be received with some qualification. For although a greater portion of the continental areas of Australia and South America were probably submerged during the Tertiary period, they have undergone no geological change such as to essentially alter their geological formation for a period equally protracted as that during which Africa has remained unaffected. Judging, indeed, from a comparison of their several faunas and floras, both Australia and South America must take precedence of every part of the African continent in point of age.† Whatever may be, however, the comparative antiquity

from the Cyanæan deluge." May we not suppose the Babylonian and Egyptian pyramids to have had a similar origin, and may they not, therefore, carry us back to the memory of the great disaster described by the Hebrews as the deluge of Noah?

* Expedition to the Zambesi, p. 535.

† See *ante*, p. 134 *et seq.*; also, 'The Voyage of the Novara,' vol. iii. pp. 69–71, for evidence as to the antiquity of the Australian continent.

of these continents, the actual age of each of them must be enormous, and it is important to remark, that not only do they lie chiefly in the southern hemisphere, but that those dark races of mankind who are supposed the most closely to represent primeval man, are found almost wholly among their inhabitants. That the primitive seat of mankind was in the southern hemisphere is a justifiable inference from the facts referred to in the preceding pages, and it remains now to see whether there is any actual geological or geographical evidence of the former existence of the central area in which they are supposed to have originated. Now, if we compare the faunas and floras of the several countries bordering on the Indian Ocean, they most clearly confirm the idea of these countries having formerly been connected. It would take up too much space to fully consider this branch of the subject, but the evidence supplied by late writers may be referred to. The agreement between the faunas of India and Africa has already been pointed out,* and although their floras are not so closely allied, yet they possess numerous affinities. Between the two, and forming as it were a link to connect them, we have the island of Madagascar, whose flora, notwithstanding its peculiarities, is "similar in many respects to the floras of India and Africa."† The same remark is applicable to the Arabian peninsula, which, being between India and Abyssinia, may be supposed to partake of the vegetable forms of both. And such is the case; "the chief characteristics of the Arabian flora, as distinguished from

* *Ante*, p. 247.

† Mrs. Somerville's 'Physical Geography,' 5th ed. p. 400.

the Indian and Persian, are many species and genera of Abyssinian plants, among which are found stapelias, and other representatives of the Cape of Good Hope flora."* To extend the survey, Mrs. Somerville asserts that, although the number of species common to the three continents is small, "there are innumerable points of analogy between the vegetation of the Brazils, equinoctial Africa, and India."† If we turn to Ceylon, supposed by Professor Owen to be the sole relic of a great continent instead of being a mere adjunct of the Indian peninsula, we find that it possesses not only plants, but animals, mammalia, birds, reptiles, and insects, which are not to be found in the Indian flora or fauna.‡ According to Dr. Burdner, "Ceylon exhibits more of the Malayan flora, and that of the Eastern Archipelago, than any portion of India to the west of it."§ This appears to be true also of the animal kingdom, as to which Sir J. Emerson Tennent says, "in various cases the faunas of Ceylon and of Australasia seem to be more similar than those of Ceylon and of Hindostan."‖ The great extension of Australian forms is remarkable. According to Mr. Murray, "although the Papuan islands, or Austro-Malayan region, and the Polynesian have numerous plants and animals peculiar to themselves, both their faunas and floras have, to a considerable extent, an Australian character."** This is confirmed by the authorities cited, and it is note-

* Mrs. Somerville's 'Physical Geography,' 5th ed. p. 395.

† Ibid. p. 411 *n.*

‡ Sir J. E. Tennent's 'Ceylon,' vol. i. p. 7. § Ibid. p. 83.

‖ Ibid. p. 272. ** Geographical Distribution of Mammals, p. 63.

worthy that in analogy to the spread of the primitive African human element all round the Indian Ocean, the primitive flora which is found on the Australian continent is also thus widely represented. Although, as Dr. Joseph Hooker asserts, "not one characteristic Australian genus has ever been found in the peninsula of India," yet there is "a large assemblage of flowering plants characteristic of that Indian peninsula," which also inhabit tropical Australia.* Of the flora of South Africa, although Mrs. Somerville asserts that "it differs entirely from that of the northern and tropical zones, and as widely from that of every other country," yet its affinity with that of Australia is admitted by this writer, who says,† "In portions of the two countries in the same latitude there are several genera identical: Proteaceæ and Restiaceæ are abundant in both, and comparatively very rare elsewhere. Irideæ, Leguminosæ, Diosmeæ, and some others, are also most characteristic of both floras." The relation of the Australian flora to that of other parts of the world is very remarkable. According to Dr. Joseph Hooker, not only is this continent without any peculiar natural orders or genera, but those which, "though not absolutely restricted to Australia, are very abundant in species and rare elsewhere . . . stand in very close relationship to groups of plants which are widely spread over the globe." ‡ It is curious, moreover, that "most of those Australian orders

* The Botany of the Antarctic Voyage of H.M.S. Erebus and Terror, vol. iii. p. 1, Introduction, p. 16.

† Physical Geography, 5th edit. p. 399.

‡ *Op. cit.* vol. iii. pt. 1, Introduction, p. 28.

and genera which are found in other countries around Australia, have their maximum development in Australia at points approximating in geographical position towards those neighbouring countries. Thus the peculiarly Indian features of the flora are most developed in north-western Australia, the Polynesian and Malayan in north-eastern, the New Zealand and South American in south-eastern, and the South African in south-western Australia."* Dr. Hooker was, on the other hand, so much struck with the Australian affinity of the South African flora that, when considering its origin, he remarked, "There is another way of viewing the whole question, but one so purely speculative, that I hesitate to put it forth. It is, that the antecedents of the peculiar Australian flora may have inhabited an area to the westward of the present Australian continent, and that the curious analogies which the latter presents with the South African flora, and which are so much more conspicuous in the south-west quarter, may be connected with such a prior state of things."†

We have here a confirmation of the opinion before expressed of the former junction of the Australian and South African continents; and although, owing to the early period at which such connection existed, the distribution of the fauna in the southern hemisphere does not furnish equally strong evidence of that event, yet it is not altogether silent. As to the Indo-African fauna, Mr. Murray says that "Africa and India have a large number of points in common, and not only in what

* *Op. cit.* vol. iii. part i. Introduction, p. 28.

† See Murray's 'Geographical Distribution of Mammals,' p. 70.

they possess, but also in what they do not;"* while he asserts that "there is not a mammal in Madagascar which does not belong to families whose types are both Indian and African, thus confirming the idea of the former connection between these two lands."† When we find affinities between the faunas of Western Africa and the coast of Brazil, and between South America and the Indian Archipelago,‡ pointing "to some continuity between those countries," and, in the latter case, "subsisting, perhaps, ere even the Andes had begun to rise above the level of the surrounding land," we cannot be surprised to find points of analogy between the faunas of even the Australian and the African continents. A remarkable example of this, which connects them not only with each other, but also with South America and the Indian peninsula, is seen in the distribution of the Struthious family of birds, which are characterized by their small wings, incapacitating them for flight. These animals "form five distinct genera, to each of which very extensive and widely separated countries have been allotted: the ostrich is spread over Africa, from the Cape of Good Hope to the deserts of Arabia; two species of the rhea range over the Pampas, the plains of Patagonia, and the elevated valleys of Southern Bolivia and Peru; the continent of Australia is the abode of the emu; the cassowary roves over some of the large islands of the Melanesian Archipelago; and the apteryx dwells exclusively in New Zealand," §

* See Murray's 'Geographical Distribution of Mammals,' p. 308.

† Ibid. p. 83. ‡ See Ibid. p. 314.

§ Mrs. Somerville's 'Physical Geography,' 5th edit. p. 485.

where the remains of gigantic members of the same family, apparently only recently extinct, have been also discovered. Mrs. Somerville says, with truth, that "no animals have a more remarkable geographical distribution than this family, or show more distinctly the decided limits within which they have originally been placed."* The inference to be drawn from this statement is confirmed by Mr. Murray, who not only says that "South America was most probably united to Australia, if we may draw any inference from the presence of allied forms of life common to both,"† but, further, that "the relations of the faunas and floras of South America to New Zealand and Australia on the one hand, and to Africa on the other, as well as some relations between South-West Australia and South Africa, almost compel us to admit that as complete a circlet of land formerly existed around the southern temperate regions as now does the northern."‡

One other argument in favour of the former existence of a now submerged continent in the Indian Ocean may be drawn from the present distribution of the monkey tribe, which, although not found in Australia, exists in Asia, Africa, and America. The baboons are met with "both in Africa and on the relics of the sunken continent in the east, and nowhere else," while the same may be said of the anthropoid apes, which are found only in West Africa, and in Borneo and Sumatra. Of these Mr. Murray says, "Although the species which come from these two so widely-separated countries differ

* Mrs. Somerville's 'Physical Geography,' 5th edit. p. 485.

† Distribution of Mammals, p. 72. ‡ Ibid. p. 25.

a good deal in appearance, they are undoubtedly pretty closely connected."* It is curious that the geographical area to which the ape family is limited should be so closely connected with that on which man has had his origin, and this fact may be recommended to the consideration of those who favour the theory of the ape-origin of man.

We are now in a position to inquire not merely what evidence geology supplies in support of the above hypothesis, but whether it furnishes any data by which we may judge of the time which has elapsed since the destruction of the supposed continental area, and thus to enable us to form some idea of the antiquity of mankind. A living geologist of eminence, when treating of the changes the earth's surface has undergone, says,† "Two irregularly-shaped valleys, but on the whole following a meridional course, traverse the surface of the earth from pole to pole. One of these, the Atlantic valley, passes close along the east coast of Greenland, between that country and Iceland, and thence extends southward on the meridian of 20° W. to the south pole itself. This valley is divided in the North Atlantic by the 'middle ground,' containing the Azores, into two valleys, of which the western, though less straight, is somewhat the deeper of the two; while in the South Atlantic its course is more directly southern, and, from the little we know of it, both by soundings and tidal observations, it appears to be considerably deeper than in the North Atlantic." The second meridional valley

* Distribution of Mammals, p. 76.

† The Rev. Samuel Haughton, in his 'Manual of Geology,' p. 146.

follows the line of the west coast of America. "These two great meridional valleys divide the globe into two hemispheres, one containing the Great Continent, Africa, Australia, and the Cape islands north of it." Mr. Haughton goes on to say* that—"These two portions of the earth's surface appear to me to have had their equilibrium destroyed by meridional fractures in a manner precisely similar, but inverted with regard to the northern and southern hemispheres in the two cases. Each line of the globe may be regarded as an arch, having for buttresses the meridional lines of depression already noticed. These buttresses having given way, the whole earth has broken, but in a different manner in the eastern and western halves. An arch or dome may give way when its buttresses fail, either by the bursting up of the crown and falling in of the hips, or by the falling in of the crown and bursting up of the hips of the arch. Both these cases have occurred, as I conceive, in each of the two great divisions into which the meridional valleys divide the globe." On examining the Great Continent in the eastern hemisphere, we see that "this mass is bisected by the meridional chain (60° to 75° E.), extending from 7° N. to 77° N., containing the Western Ghauts, the Bolor and Soliman ranges, the Ural Mountains, and Nova Zembla, through a distance of 4200 geographical miles. This ridge of elevation I suppose to represent the bursting up of the crown of the arch. In the southern hemisphere, however, the other form of fracture has occurred. The crown of the arch has fallen in, as shown by the deep valley of the

* Manual of Geology, p. 147.

Indian Ocean, lying between Africa and Australia,—a valley the depth of which, as indicated by the progress of the tidal wave, is comparable with that of the South Atlantic. On either side of this central valley the hips of the arch have burst up in the meridians of the Cape of Good Hope and Van Diemen's Land, forming the meridian chains of mountains of Africa and Australia."* These conclusions, Mr. Haughton asserts, are "based simply on mechanical reasonings;" and if they be just, the fact of Africa and Australia having been once united by continent land is established.

It is necessary, however, to ascertain, if possible, when the falling in of the dome in the southern hemisphere, as shown by the valley of the Indian Ocean, took place, for, if it happened before man *could* have been an inhabitant of the earth, the mere fact of the former elevation of the now submerged land will be of no importance in relation to the question of man's antiquity. On this subject, Mr. Haughton says† that he does "not mean to assert that the greatest valleys and lines of elevation were those of depression and elevation of the primeval crystal glass of the fractured crust of the original globe;" but he affirms, nevertheless, that the lines he has pointed out "were originally, and have always been, lines of either elevation or depression, and have constituted alternately the axes of continents or the valleys of the ocean."‡ In addition to the primary meridional fracture on the Great Continent before described, and the corresponding one of the American

* Manual of Geology, p. 147. † Ibid. p. 148.
‡ Ibid. p. 149.

continent, in which "the southern arch of the line has burst up its crown along the meridian of Cape Horn, forming the great chain of the Andes, which extends north and south for 3900 geographical miles," there has been a secondary fracture in each hemisphere. In the northern hemisphere "the centre of the dome has fallen in, forming a depression at the pole, or Arctic basin, and the hips of the dome have burst up along the small circles of latitude lying between 35° and 46°. In the Great Continent this up-burst of the dome may be traced from the Pyrenees, through the Alps, Balkan, Anti-Taurus, Caucasus, El Burz, Hindoo Koosh, the Thian Shan, and Shan Garjan Mountains, to the city of Pekin, through a range of 150° of longitude, or 6700 miles in length."* It is evident that the only geological criterion we have as to the period when the series of great catastrophes took place is the nature of the stratified deposits which the mountain elevations bear. If, therefore, we can ascertain when these great series of mountains were elevated, we can judge of the antiquity of the depressions in the earth's crust which they accomplished. Whether all the primary and secondary fractures above described took place at the same period, or which of them were contemporaneous, can perhaps hardly be determined. It is possible that the falling in of the crown of the arch in the southern hemisphere, resulting in the formation of the valley of the Indian Ocean, may have been contemporaneous with the bursting-up in America of the southern arch of the lune, as seen in the elevation of the great chain of the Andes.

* Manual of Geology, p. 148.

The date of this elevation seems to be doubtful, but D'Orbigny places it at the close of the tertiary period, while Darwin would appear to class the Andes as part of the latest system of mountain ranges.

It may be, however, that the primary and secondary meridional fractures were contemporaneous, in which case we may perhaps be able to judge of the date of the formation of the Indian Ocean by that of the bursting-up of the hips of the dome of the Great Continent of the northern hemisphere, which accompanied the secondary fracture caused by the falling in of the centre of the dome in the same hemisphere. This secondary fracture would be contemporaneous with the primary one of the falling in of the arch in the southern hemisphere, resulting in the formation of the valley of the Indian Ocean. The northern up-burst is represented by the great range of mountains extending from the Pyrenees to Pekin for a distance of 6700 miles, of which the Hindoo Koosh forms part. As to the elevation of this range, Mr. Haughton asserts that there are good geological reasons for supposing it to have taken place during the period preceding the tertiary. * According to D'Orbigny, however, both the Andes and the Hindoo Koosh are to be classed together as parts of the great system of the Alps, and we must suppose, therefore, that both these ranges were elevated about the same period; and if the formation of the valley of the Indian Ocean was connected with either of them, its date must be fixed about the close of the secondary period. It is true that Sir Charles Lyell, after referring to the conspicuous place

* Manual of Geology, p. 149.

occupied by the nummulitic formation in the earth's crust, says that "all the mountain chains, such as the Alps, Pyrenees, Carpathians, and Himalayas, into the composition of whose central and highest parts the nummulitic strata enter bodily, could have had no existence till after the middle eocene period. During that period the sea prevailed where these chains now rise, for nummulites and their accompanying testacea were unquestionably inhabitants of salt water."* This supposes, however, that every portion of these mountain-chains was raised at the same period,—a supposition which cannot be correct according to M. Elia de Beaumont, who places the elevation of the western Alps, which include the most lofty mountains of the chain, before that of the principal Alps.† This, combined with the presence of the secondary rocks in the mountain ranges referred to by Sir Charles Lyell, may lead us to believe that their elevation was due to more than one great movement, the first of which may have taken place towards the latter end of the secondary period, while the second, to which they were indebted for their full proportion, occurred at the later date.

We have, however, in the present distribution of the fauna of the southern hemisphere, a test of the correctness of this conclusion. It has been already shown that the animal forms of the Australian continent agree more closely with those of Europe, during the oolitic, rather than with those of any later period; while the fauna of South America is more nearly allied with that

* Elements of Geology, 6th edit. p. 306.

† See Lardner's 'Museum of Science and Art,' vol. xii. p. 20.

of eocene Europe. The peculiar character of the Australian mammalia, which still consists, as it appears to have always done, mainly of marsupials, proves that it cannot have been connected with the great seats of origination of new organic forms during the tertiary period, and we shall probably not be far wrong in finding the era for its separation towards the close of the secondary period. It may be thought, however, that unless South America and Australia were separated from the great northern system of continents at different periods, the date just mentioned is too early, considering the agreement of the South American fauna with that of eocene Europe. This agreement may, however, be otherwise accounted for. As Professor Owen asserts, * "the genera *Equus, Tapiris,* and the still more ubiquitous *Mastodon,* form the chief, if not sole exceptions," to the rule that no relic of the tertiary mammalia of Europe has been found in the caves or recent tertiary deposits of South America. That these animals may have reached this distant point by some other route than that of the sub-Indian continent cannot be doubted. The chief home of the mastodon appears to have been in North America, from whence it probably wandered southward, and probably the presence in the southern continent of the horse may also be thus accounted for. As to the tapir, which does not yet appear to have been discovered in North America, it is to be remarked that it is one of the most primitive pachydermatous forms, and probably was able to reach its South American habitat before the land in the southern hemisphere had received its

* Palæontology, p. 389.

present arrangement. That South America had become separated from the great system of continents in the Old World before the commencement of the tertiary period is evident, moreover, from the peculiarity of its own fauna; and the same may be said as to the separation between the former continent and Australia, which probably took place at a still earlier date. South America alone* "is now inhabited by species of sloth, of armadillo, of cavy, aguti, chnomys, and platyrrhine monkey," and "no fossil remains of a quadruped referable to any of these genera have yet been discovered in Europe, Asia, or Africa." One large species of edentate has certainly been found in the tertiary deposits of Europe, but it "manifests its nearest affinities to the genus *Manis*, which is exclusively Asiatic and African." The total absence from the Old World continents of so many animal forms found in South America, and the almost complete want by the latter of European tertiary mammalian forms, combined with the special nature of the Australian fauna, strongly confirms the idea that the present relative position of land and water in the southern hemisphere was due to movements of the earth's crust, which took place about the commencement of the tertiary period.

The occurrence of some great and most important movements of the earth's crust towards the close of the secondary period is undoubted. The vast extent over which the chalk formation of the cretaceous group has been traced shows how much of the present dry land must then have been under water. Sir Charles Lyell

* Owen's 'Palæontology,' p. 389.

says* that "the marked discordance in the fossils of the tertiary, as compared with the cretaceous formations, has long induced many geologists to suspect that an indefinite series of ages elapsed between the respective periods of their origin. Measured, indeed, by such a standard,—that is to say, by the amount of changes in the fauna and flora of the earth effected in the interval,—the difference between the cretaceous and eocene may have been as great as that between the eocene and recent periods." This original change was so great as to justify us in asserting that a totally new order of things was introduced with the tertiary period. A late writer† does not hesitate to characterize it as "a break in the law of continuity," while assuming that the discovery of certain fragmentary intermediate fossils shows the break not to have been so extensive as was at one time supposed. How far this latter statement is true may be doubted. Sir Charles Lyell says‡ that "these newly-discovered records do not fill up the wide gap, some of them being closely allied to the eocene, and others to the cretaceous type, while none appear as yet to possess so distinct and characteristic a fauna as may entitle them to hold an independent place in the great chronological series." That this break between the oolitic period and the commencement of the tertiary was connected with the stupendous movements which finally resulted in the elevation of the great mountain-range in the parallel of 40° N., extending over a distance of 6700

* Elements of Geology, 6th edit. p. 310.

† Mrs. Somerville's 'Physical Geography,' 5th edit. p. 19.

‡ Elements of Geology, 6th edit. p. 310.

miles, and which must be referred to "the period preceding the tertiary," would seem to be very probable. As Mr. Haughton shows, however, this extensive elevation took place "along the line of an ancient fissure," and the principle laid down by the same geologist—that the meridional lines "were originally, and have always been, lines of either elevation or depression, and have constituted alternately the axes of continents or the valleys of the ocean"*—requires that the elevation of the extensive mountain-chains must have been accomplished by a change in the relative positions of the great masses of land and water on the earth's surface. It is to the movements attending this change we must refer the depression of the vast tract of land which formerly occupied the position of the Indian Ocean, and the consequent separation of the several continents by which that ocean is now almost enclosed.

Assuming that the destruction of the sub-Indian continent took place at the close of the secondary epoch, have we any means of ascertaining the actual period which has elapsed since that event, so as to judge of the antiquity of man on the globe? The answer to this question must—at least, for some time to come—be in the negative; but we can obtain some idea of its vastness by a consideration of the calculations which have been made as to the time during which certain geological changes must have been in progress. The estimate by Sir Charles Lyell of the age of the Mississippi delta, for the formation of which he allows 100,000 years, gives us some idea of the enormous periods required by

* Manual of Geology, p. 149.

the geologist. The calculation as to the duration of the glacial epoch in the northern hemisphere is yet more striking. Sir Charles Lyell gives as the most simple "series of changes in physical geography which can possibly account for the phenomena of the glacial period," *first*, a continental period, when the land was about 500 feet above its present level; *secondly*, a period of submergence, when Great Britain, north of the Thames and the Bristol Channel, and Ireland were reduced to an archipelago; and *thirdly*, a second continental period, "when the bed of the glacial sea, with its marine shells and erratic blocks, was laid dry, and when the quantity of land equalled that of the first period." Assuming that the average change of level is 2½ feet in a century, it appears that the depression of 1400 feet which Wales exhibited would require 56,000 years. According to Professor Ramsay, however, a further elevation of 800 feet is required "for the deposition of some of the stratified drifts," which demands "an additional period of 32,000 years, amounting in all to 88,000; and the same time would be required for the elevation of the tract to its present height. But if the land rose in the second continental period no more than 600 feet above the present level, this . . . would have taken another 24,000 years; the whole of the grand oscillation, comprising the submergence and re-emergence, having taken, in round numbers, 224,000 years for its completion; and this, even if there were no pause or stationary period, when the downward movement ceased, and before it was converted into an upward one."*

* See 'Antiquity of Man,' pp. 282, 285.

This calculation refers to a change affecting the earth's surface in the northern hemisphere, comparatively modern when compared with that which took place at the close of the secondary period. Sir John Lubbock has made a calculation of the period which the denudation of the Weald, during the cretaceous era, must have occupied, and he estimates it at 150,000,000 years.* This will give us some idea of the time which, according to geologists, would be required for the deposition of the strata of the tertiary period. Sir Charles Lyell, indeed, thinks that half of the mass which was swept away during the denudation of the weald may have disappeared before the commencement of that period,† which must, therefore, on Sir John Lubbock's hypothesis, have not less than 75,000,000 years assigned to it This estimate is, nevertheless, purely arbitrary, and depends altogether on the hypothesis that the phenomena on which the calculation is based are due wholly to "the mechanical force of water in motion, operating gradually, and for ages." If this were the only force at work, and if its operations were always conducted in the same silent and gradual manner as now, we can hardly grant too long a period for their progress. It is possible, however, that other agencies than those which geologists have hitherto allowed may have been equally powerful. Mr. Buckle says that "the supposition that volcanic agencies were formerly more potent than they are now is by no means inconsistent with the scientific doctrine of uniformity, though it is generally considered to be so." Even this

* See 'Prehistoric Times,' p. 732.

† Elements of Geology, 6th edit. p. 366.

view will not sufficiently explain the origin of those terrestrial movements on which the chief geological phenomena depend, and mathematicians have called in the aid of the "laws of gravitation and celestial mechanics;" and if their opinion be correct, the antiquity claimed for certain geological changes may have to be considerably modified. It is established that the parallelism of the earth's axis is destroyed slowly by a movement* which "has the effect of making the equinoctial points on the surface of the earth retrograde towards the east from year to year, in such a manner, that at the end of 25,800, according to some astronomers, but 21,000 years according to Adhemar, the equinoctial point has literally made a tour of the globe, and has returned to the same position which it occupied at the beginning of this immense period, which has been called the *great year*." This period of the "*precession of the equinoxes*" is divided into two divisions, called by De Touvencel the great summer and winter, each of which, according to Adhemar, continues for 10,500 years. "During the whole of this period, one of the poles has continually had shorter winters and longer summers than the other. It follows that the pole which submits to the long winter undergoes a gradual and continuous cooling, in consequence of which the quantities of ice and snow, which melt during the summer, are more than compensated by that which is again produced in the winter. The ice and snow go on accumulating from year to year, and finish at the end of the period by forming, at the coldest

* See M. Mangin, cited in 'The World before the Deluge,' by Louis Figuier, pp. 388–392.

pole, a sort of mist or cap, voluminous, thick, and heavy enough to modify the spheroidal form of the earth. This modification, as a necessary consequence, produces a notable displacement of the centre of gravity, or—for it amounts to the same thing—of the centre of attraction, round which all the watery masses tend to restore it." According to the notion of Adhemar, the south pole finished its great winter in 1248 B.C., by which period the watery masses covered nearly the whole of the southern hemisphere. Since that date, however, the great winter of the northern hemisphere has been in progress. "Our pole, in its turn," says M. Mangin, "goes on getting cooler continually; ice is being heaped upon snow, and snow upon ice, and in 7388 years the centre of gravity of the earth will return to its normal position, which is the geometrical centre of the spheroid. Following the immutable laws of central attraction, the southern waters accruing from the melted ice and snows of the south pole will return to invade and overwhelm once more the continents of the northern hemisphere, giving birth to new continents, in all probability, in the southern hemisphere."

According to this hypothesis, about 19,000 years have expired since the northern hemisphere felt the full severity of its glacial epoch, and it is about 24,000 years since its commencement, while only 8506 years have elapsed since the southern hemisphere was passing through the height of its last "great winter." Adhemar's theory, however, now requires to be considerably modified. Mr. Croll, who had independently formed a theory of submergence similar to that of the French

mathematician, has shown * that "a glacial epoch resulting from the earth's orbit would extend over a period of upwards of 100,000 years," although, "owing to the precession of the equinoxes and the revolution of the apsides, the gravitation would be transferred from the one hemisphere to the other every 10,000 years or so." According to this view, although the precession of the equinoxes results in a "transfer of gravitation" from one pole to another, yet the great accumulation of ice which marks the height of the glacial epoch takes place only at the time when the eccentricity of the earth's orbit attains its greatest limit. From this it results that the glacial epoch consists of several periods, each of which has its maximum point of cold, but during only one of these periods the accumulation of ice attains so great a height as to result in the change of the earth's centre of gravity, and the consequent submergence and elevation of vast tracts of land. † This view gives a much greater length of time for the recurrence of the various glacial changes than the original hypothesis of Adhemar, and Mr. Croll asserts that while "the period of maximum cold must have been somewhere about 200,000 or 210,000 years ago," the eccentricity of the earth's orbit will for more than 100,000 years remain too low to allow of that vast accumulation of ice at the poles which marks a glacial epoch.‡ Although 200,000 years is, geologically speaking, a very brief period, it is otherwise when measured by our present ideas of time,

* See Mr. Croll's letter, in the 'Reader' for 1865, vol. vi. p. 271.

† Ibid. vol. vi. p. 631.

‡ Ibid., and letter at p. 659 of the same volume.

and when compared with the chronology founded on Hebrew tradition. If Mr. Croll's hypothesis be true, and the opinion that man existed in the southern hemisphere previous to the formation of the Indian Ocean, towards the beginning of the tertiary period be well founded, man cannot have originated less than 200,000 years ago. Professor Jukes states that he has long thought the human race to have existed at least 100,000 years,* and that either of these periods is too long but few geologists will be found to affirm. Indeed, apart from the testimony of Hebrew tradition, which professes to describe what it is impossible for man to know anything about, there is not the slightest reason, irrespective of natural conditions, for limiting the first appearance of mankind on the earth to any particular epoch. The African negro is known to have continued in his present state for upwards of 5000 years, and what a vast period of time, therefore, must have been required thus to elevate him from the condition of primitive man, or even from that of the Australian savage, who now the most nearly approaches man's primitive state! The lowest savage is not, however, absolutely uncivilized, and the most degraded race has so immeasurably outstripped the highest of the brute creatures as to develope a language, and to make so important a discovery as the means of obtaining fire. When we consider these facts, and, moreover, that the progress of humanity takes place in an ever-increasing ratio, which must, therefore, in the first ages of man's existence, have been immeasurably small, no period that science may require will

* See the 'Reader,' vol. ii. p. 483.

appear too extravagant for his complete development, and it may be that for a vast number of ages he remained but little removed above the animals by which he was surrounded. Man does, indeed, judging from palæontological evidence, appear to have been one of the last in the series of Nature's works on earth; but there is *primâ facie* no reason why he should not have an antiquity equal to that, if not of any of the mammalia, at least of the ape. Once firmly established, man must have continued to exist, unless crushed out in the "struggle for life,"—an event which his continued existence proves not to have taken place. With his life must have been handed down the results of his experience, and, apart from the influence of other human beings, there is no reason why habits should not be perpetuated almost unchanged for any number of generations.

Under these conditions, however, it cannot be surprising that the present lineal representatives of the primitive race, as we must suppose one or other of the dark uncivilized peoples of the southern hemisphere to be, should be incapable of intellectual culture. Existing under conditions of life so unfavourable to civilization as those presented by the tropics ever since the beginning of the tertiary period, what wonder that the physical organization of the primitive race retains so little of its pristine plasticity? These unfavourable conditions are sufficient, according to Mr. Buckle, to account for the *non-development* of civilization, and their persistence through a vast period of time can alone explain the *incapacity* for improvement exhibited by the lowest races of mankind.

In conclusion, it may be asked, if *time* alone is required to account for the incapacity of these peoples for civilization, may not the origin of "race" itself be similarly explicable? If all mankind had continued under the conditions of nature equally unfavourable for the development of their mental and bodily capacities, all races would have remained equally uncivilized. It may, indeed, be almost said that, on the hypothesis of the unity of man's origin, there would have been only one race, and it might have been so if the conditions of life, irrespective of their favourableness or unfavourableness for the development of civilization, had remained the same for every portion of mankind. These conditions did not remain the same, however, and their improvement would necessarily be accompanied by increased intellectual activity, which would itself react on the brain, and through it on the physical organism generally; thus, as we may well suppose, either *originating* the peculiarities which distinguish different races, or, at least, perpetuating accidental peculiarities already existing, which, afterwards, by persistence, became fixed as race characters. But change in the physical conditions of life has itself, undoubtedly, a direct influence on the physical structure; and, however small the divergence from the primitive type may originally have been, time alone would be required to develope, by the accumulation of a series of such divergences, all the peculiarities of the different races of mankind. The origin of civilization, therefore, would be recognized as also that of race; and if we could show the stages of the development of civilization, we might be able to establish the affinity of the

several great races of mankind. The materials necessary to enable us to perfectly establish the unity of mankind are, however, as yet incomplete. It is, nevertheless, no inconsiderable step in that direction, to throw back the age of man's first appearance on the earth to a date which allows space for the lapse of time sufficient for the great changes which he must have undergone, supposing all races to have sprung from one common progenitor.

CHAPTER VII.

MATTER AND SPIRIT.

THERE still remains one subject for consideration, which, in the present stage of scientific inquiry, constitutes the most important objection to the threefold theory of man's origin enforced in the preceding pages. The tendency of modern scientific thought is to correlate all the phenomena of nature as the manifestations of one simple energy, of which the inorganic and the organic are but more or less complex phases. The professed advocates of the doctrine of material development ultimately reduce all things to an eternally existing and infinitely extended matter, of which force is the phenomenal activity.* Such would appear to be the conclusion to which the hypothesis of Mr. Darwin tends. Stated in the words of Professor Huxley, it is, "Given the existence of organic matter, its tendency to transmit properties, and its tendency accordingly to vary; and,

* See Louis Büchner's 'Force and Matter.'

lastly, given the conditions of existence by which organic matter is surrounded,—these put together are the causes of the present and the past conditions of organic nature."* The existence of matter in an organized form is here assumed; but from Professor Huxley's supposition, that in fifty years' time science will be able "to produce the conditions requisite to the origination of life,"† we are justified in considering that "organization" is the *accident*, while the existence of matter in its simple inorganic form is the only fundamental requirement. This is, moreover, confirmed by the assertion of a late writer—the most recent advocate of the development hypothesis—that man, like the animals, springs from inorganic elements.‡ If we turn to the positive philosophy, we see that it has the same material basis. Mr. Lewes, while affirming that there is no real distinction between vital and psychical phenomena, the latter being themselves vital,§ defines vitality as "the abstract designation of certain special properties manifested by matter under certain special conditions."‖ We have here the same fundamental idea as that on which the hypothesis of Mr. Darwin reposes. Mr. Lewes adds, "Life is known only in dependence on substance; its activity is accelerated or retarded according to the conditions in which the elemental changes of the substance are facilitated or impeded, and it vanishes with the disintegration of the substance." This is the necessary conclusion of materialism.

* Origin of Species, p. 136. † Ibid. p. 71.

‡ 'Man,' by David Page, LL.D., p. 155.

§ History of Philosophy, 3rd edit. vol. ii. p. 626. ‖ Ibid. vol. i. p. 84.

It is apparent that if this conclusion were established, it would furnish an insuperable objection to the theory as to man's nature enforced in the preceding pages, and it is necessary, therefore, to examine the grounds on which the materialistic argument is based. Before doing so, it may be remarked that no objection can be made to the existence of "spirit," on the ground that it is not capable of *direct* proof. Positive science allows the existence of matter in so attenuated a condition that it can be known only by the effects of its motion, and on the "disintegration of the substance" which attends the destruction of life, the substance itself still remains, although it may take a form which cannot be recognized. The mere "non-perceptibility" of spirit is, therefore, no proof of its non-existence. But, further, supposing the animal organism possesses such a principle of being as this, its real life may continue, notwithstanding the disintegration of the bodily substance, without its existence being perceived. It is extremely probable that the ether can be rendered knowable to us, under the conditions of the present life, only by virtue of its action on the matter of the earth's atmosphere; and if, therefore, this medium were removed, there would be no possibility of our guessing its existence. In like manner, the disintegration of the bodily organism may destroy the only means by which the principle of animal life can reveal itself to us, except, it may be, under certain special conditions.

Notwithstanding the fact, that there is no *primâ facie* objection to the spiritual view of life, the advocates of the material hypothesis may still assert that it is quite

sufficient to account for all the phenomena of organic matter, without calling in the agency of any special principle of being. Let us then inquire, in the first place, of the positive philosophy for the evidence furnished in support of this assertion. Now, it is noteworthy that, although this philosophy affirms that life is only "the absolute designation of certain special affinities manifested by matter," yet it admits these affinities to be so special, that the superaddition of their phenomena to those of molecular combination, with which chemistry is concerned, constitutes a new science.* Again, although Positivism declares that "psychical phenomena are no superaddition to the phenomena of life," yet it admits that *contractibility* and *sensibility*—the "two special and distinctive properties" of the muscular and nervous tissues, which are the seat of the "complex and special class of phenomena called Relative or Animal Life"—are ultimate facts that do not admit of explanation.† We here see special and distinct phases under which matter exhibits itself, answering to the three phases of nature—the inorganic, the vegetable, and the animal. True it is, according to Positivism, matter still; as Mr. Lewes expresses it, "organic matter is a higher degree of complexity of inorganic matter, which special degree causes a speciality in its phenomena. So thought is but a higher degree of life, its speciality creating special phenomena."‡ When, however, we ask, what beyond the mere fact of complexity, which itself requires explanation,

* See Mr. Lewes's 'History of Philosophy,' 3rd edit. vol. ii. p. 626.

† Mr. Lewes's 'Comte's Philosophy of the Sciences,' p. 199.

‡ Ibid. p. 212.

determines the passage of matter from the inorganic to the vegetable, and from thence to the animal form of organization, the Positive Philosophy is silent. It does, indeed, declare that there is no "essential distinction between organic and inorganic matter," nor yet "any essential (noumenal) separation" between life and mind; but, at the same time, it admits that it has no other object of inquiry than that of laws.* Treating solely of the *laws* of phenomena, it does not concern itself with their cause; and, so far therefore as Positivism is concerned, any of those phenomena may be due to the activity of an immaterial principle, the presence of which may be the *cause* of the complexity of structure that furnishes the special conditions necessary for such phenomena, and which can perhaps reveal itself only through matter.

If, however, we turn to the hypothesis of Mr. Darwin, we find it has to do with something besides mere laws. Its very object is to explain the *reason* why the phenomena of organic nature differ so much among themselves. As expressed by Professor Huxley, it declares that "all the phenomena of organic nature, past and present, result from, or are caused by, the inter-action of those properties of organic matter, which we have called *Atavism* and *Variability*, with the *Conditions of Existence.*"† Now it is evident that if this hypothesis were restricted to the development of each of the several kingdoms of organic nature out of an original prototype, its truth need not affect the theory of man's nature

* Mr. Lewes's 'Comte's Philosophy of the Sciences,' p. 215.

† Professor Huxley's 'Origin of Species,' p. 136.

enforced in the preceding pages. Any degree of change in *form* within the limits of the great divisions of nature may be allowed so long as their *substantial* distinction is admitted. The Darwinian hypothesis, therefore, requires consideration only so far as it affects to derive man, equally with both the animal and vegetable kingdoms, from a common and single progenitor. As to the former, Professor Huxley says, "There cannot be the slightest doubt in the world that the argument which applies to the improvement of the horse from an earlier stock, or of ape from ape, applies to the improvement of man from some simpler and lower stock than man."* The same argument may be used to explain the origin of the animal from the vegetable organism. On examination, however, we find that the conclusion cannot be sustained. When it is said that "the structural differences which separate man from the apes are not greater than those which separate some apes from others,"† we have, independently of the fact that there is no evidence of the past or present existence of any such links between man and the ape as there are between ape and ape, a statement which is not correct. This may, indeed, be proved by Professor Huxley's own admission. He is constrained to admit "the width of the gulf in intellectual and moral matters which lies between man and the whole of the lower creation,"‡ although he explains it as the result of "variation in function," rather than of variation in structure. According to Professor Huxley, it is *language* which "constitutes and makes man what he is;" and this language depends on "the equality

* Origin of Species, p. 152. † Ibid. ‡ Ibid. p. 153.

of action" of the two nerves which supply the muscles of the glottis, a change in the structure of which, although imperceptible, might have a result which would be "practically infinite." But how can a change of structure which has so marvellous a consequence be a slight one? The fact is, that its insignificance is merely apparent, for it is associated with a *general* superiority and refinement of nervous structure and sensibility, which give a higher form and tone to the human organization, being the conditions on which the special action of the nerves connected with the muscles of the glottis altogether depends. It is, however, a fundamental error to ascribe man's superiority over the animal world to "language." The faculty of speech is a most important instrument for the education of man's mental faculties, but it is *merely* an instrument, and one without which man would still be vastly superior to the creatures below him. How strange that man's civilization—and may we not add, his responsibility and immortality?—depends wholly on "the equality of action of the two nerves which supply the muscles of the glottis." Surely the talking parrot must also have a capacity for civilization!

But let us see the explanation given of the passage from the inorganic to the organic, or of the progress from the organic to the animal life.

A modern writer, of pre-eminent ability, who accepts the hypothesis of Mr. Darwin as reducible to the "general doctrine of evolution," has ably advocated the theory that all organized bodies have been derived from a single protoplast. Nothing can be more explicit than the following words, used by Mr. Herbert Spencer:—"If a

single cell, under appropriate conditions, becomes a man in the space of a few years, there can surely be no difficulty in understanding how, under appropriate conditions, a cell may, in the course of untold millions of years, give origin to the human race."* According to this view, man is simply the final product of the activity of the external forces which have originated the modifications exhibited by all other organic forms; there being combined with this activity as a subsidiary influence, the "mutual actions of organisms." There appears, however, to be a want of analogy between the terms involved in this reasoning which is fatal to it. The original protoplast here supposed could have no hereditary tendency towards any special phase of evolution. The form it should take was dependent on the action of the external forces by which it was to be modified. It is not so, however, with the human cell. Mr. Lewes may be right when he denies the possibility of *potential* existence otherwise than as being simply subjective;† but it is undoubted that "the function of development and developing conditions" can only act in a certain direction, and can be varied only within certain limits. No variation of the conditions of development can evolve a monkey out of a human cell. It is true that Mr. Spencer supposes the existence of "appropriate conditions" for the evolution of the primitive cell, and it may be said that an "inherent tendency" towards evolution was one of them. This is not enough, however; as we have in the one case merely a *general* tendency,

* Principles of Biology, vol. i. p. 350.

† See 'The History of Philosophy,' 3rd edit. p. 87.

whilst in the other it is highly specialized,* and there is no proof that the co-operation of the former with the activity of the external forces, could alone give rise to the special tendency exhibited by the human germ. It might lead to the varying phases of organic nature, but there is no evidence that the animal, much less the human, organism could thus be reached. We shall see hereafter, moreover, that, as at present stated, the hypothesis under consideration gives no satisfactory explanation of the *origin* of the primitive cell, thus leaving unsolved the chief problem presented by organic nature in its several phases.

Much light is, nevertheless, thrown on this subject by the due application of a most important principle laid down by Mr. Herbert Spencer. It is that "function is from beginning to end the determining cause of structure."† From this it follows, that what Mr. Lewes calls the "function of development" must determine the particular structure of the organized body evolved. This influence of function over structure should be specially noticed for two reasons. In the first place, the change in structure arising from a modification of function must be so small as not to be appreciable until after the lapse of a vast period of time; thus also must it be where a "spontaneous modification of structure" is taken advantage of by function and perpetuated by natural selection. Applying this to the question of human origin, the progress supposed from the ape to man must have supplied innumerable links in the chain of evolution, not necessarily fossilized, but having living representatives, like the vari-

* See 'Principles of Biology,' vol. i. p. 180. † Ibid. p. 167.

ous inferior races of man, who remain to mark the points at which the higher races have branched off from the primitive stock. There is apparently as much reason for the perpetuation of the supposed intermediate forms between man and the ape, as for that of the lowest existing races of mankind. In fact, no ground is assignable, consistently with the hypothesis of evolution, why the only wide gap in the series should be between the highest ape and man. The only explanation which can be given by those of its advocates who admit the possession by man of "special endowments"—"that nature can produce a new type without our being able to see the marks of transition"*—is in reality fatal to the hypothesis itself, seeing that the exercise of such a power bespeaks the operation in nature of some fresh principle of vitality.

But, secondly, it is evident that the minute modifications of function and structure supposed cannot result in the formation of something fundamentally different from that which has been thus modified. It has been shown in the preceding pages that it is not the possession of speech which constitutes man's superiority over the animal world, but the faculty of spiritual perception the exercise of which underlies both human language and every other phase of culture by which man is distinguished. This is a power wholly dissimilar from any the animal world possesses, and no modification, therefore, of the animal organization could evolve it. Reference to "a plan of ascensive development" will not meet the difficulty when "new and special endowments" are ad-

* Mr. Andrew Murray, cited in 'Man,' by David Page, LL.D., p. 151.

mitted,* for according to the principle laid down by Mr. H. Spencer, that "function is antecedent to structure," those endowments can exist only in response to a preceding functional tendency. This principle, moreover, directly contradicts the reasoning of Professor Huxley, that a functional difference which is "vastly unfathomable, and truly infinite in its consequences," has arisen from a small structural change. The modification of the organism must have been preceded by that of the function; and as the latter is itself dependent on something which the lower animals do not possess, it is absolutely impossible that either the function or the structural differences which it precedes can have been evolved simply out of an animal organization.

The conditions attending the origin of animal life are somewhat different from those above referred to. The hypothesis of evolution supposes man to be the final result of the modification of the animal organism. The position of the animal, in relation to the lower phase of organic life, is, however, hardly parallel; for, although the former possesses organic vitality, it cannot be said to pass, in the course of its evolutions, through the plant-phase of existence. The human fœtus, in the several stages of its development, resembles the embryos of certain vertebrate animals; but it is only at the very commencement of evolution that it presents any resemblance to the vegetable organism, and then not to the highest or any advanced form, but merely to the most primitive of all plant-forms. As Mr. H. Spencer says in relation to man, "The germ out of which a human

* Dr. Page, op. cit. p. 153.

being is evolved differs in no visible respect from the germ out of which every animal and plant is evolved. The first conspicuous structural change undergone by this human germ is one characterizing the germs of animals only—differentiates them from the germs of plants."* In this there is no passage from the plant to the animal, but merely of *both* from a similar germ. That these germs are in *reality* exactly similar will hardly be affirmed. As well might it be said that the human embryo at the stage where it resembles that of the fish does not differ from the embryonic fish. That they are not in every respect alike is evident from the difference between the final products of their evolution, and it must be the same with the plant and animal cells. If we compare the lowest animal and vegetable organisms—those which maintain the "original central distribution," such as the *Uredo* and the *Protococcus*, among plants, and the *Gregarina*, among animals,—we see that they hardly differ in appearance, and yet it is not doubted that they belong to quite distinct kingdoms of nature. The fact, mentioned by Dr. Carpenter, that the lowest animal organisms do not exhibit the sensibility and contractibility—the properties of the nervous and muscular tissues—whose phenomena are the chief characteristics of animal life, instead of furnishing a ground of objection to the proposed classification of those creatures, establishes the more clearly the fundamental differences between animal and vegetable vitality. Mr. Lewes says, "All the various tissues which in man seem so distinct, successively lose their characteristic attributes as we

* Principles of Biology, vol. i. p. 142.

descend the scale of organisms, and always tend to lose their identity in the cellular tissue, which, as we know, remains the sole basis of the vegetable world, and also of the lowest forms of the animal world."* The last portion of this paragraph is hardly correct; but if the special tissues "tend to lose their identity," the same must be said of their special properties, which we can only suppose are resolved into the "irritability" which characterizes the "primordial cellular tissue." By the existence of this property can the actions of the lowest animal organisms be alone explained; whilst the fact of its not exhibiting itself in connection with the "primordial cellular tissue" of the vegetable world, shows that there must be some fundamental difference between the cells of the animal and vegetable organisms which has hitherto escaped the research of physiologists.

Mr. Herbert Spencer, indeed, says that "we must infer that a plant or animal of any species is made up of special units in all of which there dwells the intrinsic aptitude to aggregate into the form of that species."† This "intrinsic aptitude," or "inherent tendency," constitutes the proof of the difference between the animal and plant cells, and it is equivalent to the "function" which necessarily precedes the formation of the specific structure. From the necessity of this property, however, arises the greatest difficulty in the way of supposing that all animal and vegetable organisms have originated from one primordial cell. The inherent tendency to aggregate in a special form which the present units of an

* Comte's 'Philosophy of the Sciences' (Bohn), p. 185.

† Principles of Biology, vol. i. p. 181.

organism possess, must have been also possessed by the first animal and vegetable cells. The most simple cellular form taken by an animal organism—such as that of the *Protococcus nivalis* or *Red snow*, which consists of a single cell—must be preceded by the controlling agency of the structural function; and if we trace such an organism as this up to its first origin in time, we are still compelled to suppose the prior existence of a function to direct the process of evolution in its result. Without this, we have only the action of the "medium" to account for the varying results of this process; and it is totally inadmissible to assume that the medium can so operate as that two cells, which are the same in structure, shall show, in the one case, the phenomena of organic life only, and, in the other, those of the higher animal life. It is, in fact, equivalent to asserting that the same cell can be either vegetable or animal, according to the external conditions under which it is placed —a conclusion which, although stated by the hypothesis of evolution in relation to the primitive germ, is hardly consistent with the assumption it makes of the existence of certain physiological units in which the "organic polarity" resides.

This fundamental difference between the animal and vegetable cells leads us to consider whether, as the positive philosophy asserts, the cell *is* the most simple form which organic matter takes. Mr. Lewes says, "The cell or sphere is not only the typical form of an organic being, that with which every organic being from the lowest to the highest commences; it is the indispensable condition of the being's existence."* This is not, how-

* Comte's 'Philosophy of the Sciences' (Bohn), p. 155.

ever, the language of the hypothesis of evolution. Mr. H. Spencer declares that "organic matter in a state of homogeneous aggregation must precede organic matter in a state of heterogeneous aggregation."* We have examples of the former in creatures, "such as the Rhizopods, which are not cellular, but nevertheless exhibit vital activities, and perpetuate in their progeny these specific distinctions;" and from the existence of these creatures, and from the fact that "in many cases a fibrous tissue arises out of a structureless blastema," Mr. H. Spencer concludes that "organic polarity," or "the tendency to aggregate into specific forms," does not dwell in the cells or *morphological units.*† In this structureless *blastema,* and the structureless Rhizopods, we have probably analogous forms of vitality; and in them we reach that state of "homogeneous aggregation" which, according to the hypothesis of evolution, is the primordial form of organic matter. The "nutritious fluid" which, in the vegetable organism, answers to the *blastema*—the "organizable" matter of the Positive Philosophy—is called *cambium.* According to M. Mirbel, the cambium "is at first a liquid of mucilaginous consistence, which is gradually thickened into a jelly. We then see it covered with little dots which resemble little points; but these are so many little cavities which are gradually increasing (cellular cambium); the cavities continue to increase in proportion as the partitions, at first very thick and soft, grow thinner, and they take a regular form, which as yet they had not: it is the cellular tissue, still in a continuous tissue, which

* Principles of Biology, vol. i. p. 167. † Ibid. p. 183.

may be compared in its form and appearance to the lather of soap-suds."* We see, therefore, that while the animal cell is derived from the *blastema*, the vegetable cell is the product of organic change in the *cambium;* and in these we have the most primitive forms of organic matter.

But is there anything in the chemical constitution of the *blastema* or of the *cambium* which will account for the difference between their final productions? The nature of the blastema may be judged of by the "formative fluid" which is supplied by the blood for the repair of an injury, and which passes "spontaneously into the condition of a simple form of tissue," resolving itself "into fibres or into cells, according as the wound is completely secluded from the air or is exposed to it."† This fluid owes its formative power to the fibrine it contains, being albumen which has undergone a chemical change in the blood; and the albumen and fibrine themselves consist almost wholly of the four *organogens*—oxygen, hydrogen, nitrogen, and carbon—in somewhat varying proportions. On inquiring into the chemical composition of the *cambium*, from which all vegetable tissues are formed, we find that it is said to be identical with that of "the cellulose, and, consequently, of the greater part of the organic substances found in the sap."‡ Cellulose, however, contains only three of the organogens—carbon, hydrogen, and oxygen; the fourth (nitrogen), which is found in the blastema, being absent. Nevertheless, the vegetable compounds "which constitute the basis of all

* Jussieu's 'Elements of Botany' (Bohn), p. 271.

† 'Animal Physiology,' by Dr. Carpenter (Bohn), p. 211.

‡ Jussieu's 'Elements of Botany,' p. 272.

the tissues of the plant contain this element, in addition to the others;"* and, moreover, the albumen, fibrine, and caseine of the vegetable organism agree perfectly, both in chemical composition and in their properties, with animal albumen, fibrine, and caseine.† The dependence of vitality on the presence of nitrogen has been referred to by Mr. Herbert Spencer, who says that "whereas plants, characterized as a class by containing but little nitrogen, are dependent on the solar rays for their vital activities, animals, the vital activities of which are not thus dependent, mainly consist of nitrogenous substances."‡ There would seem from this to be some intimate chemical relation between light and nitrogen; and that the latter is really essential to mere organic vitality is shown by the fact, that "the seed of a plant contains nitrogenous substance in a far higher ratio than the rest of the plant; and the seed differs from the rest of the plant in its ability to initiate, in the absence of light, extensive vital changes —the changes constituting germination."§ Every living vegetable cell also contains nitrogen, the part of the cell in which the latter is found initiating "those changes which constitute the development of the cell." We must suppose, therefore, that nitrogen plays a very important part in the primitive stage of both animal and vegetable life, and from the fact that if "cambium be drawn off from the stem, its particles show a tendency to arrange themselves in a form resembling that of cells and

* Dr. Carpenter's 'Vegetable Physiology' (Bohn), p. 30.

† Liebig's 'Letters on Chemistry,' p. 352.

‡ Principles of Biology, vol. i. p. 37. § Ibid. p. 38.

vessels,"* it would seem that the *cambium* does really contain the whole of the four organogens which are present in the *blastema*.

But this dependence of both animal and plant vitality on the presence of the same four chemical elements makes it still more difficult to explain why the resulting organisms should differ so greatly in their vital phenomena, especially when taken in combination with the fact that the animal organism alone can exist before taking the "cell" form. Mr. Herbert Spencer has felt the full force of this difficulty, and he seeks to meet it by asserting the existence of certain units, intermediate before the *chemical* units of which organic bodies are composed, and the *morphological* units, or cells, in neither of which "the tendency to aggregate into specified forms" can dwell. "If then," adds Mr. Spencer, "this organic polarity can be possessed neither by the chemical units nor the morphological units, we must conceive it as possessed by certain intermediate units, which we may term *physiological*. There seems no alternative but to suppose that the chemical units combine into units immensely more complex than themselves, complex as they are, and that in each organism, the physiological units produced by this further compounding of highly compound atoms, have a more or less distinctive character. We must conclude that, in each case, some slight difference of composition in these units, leading to some slight difference in the mutual play of forces, produces a difference in the form which the aggregate of them assumes."†

* Dr. Carpenter's 'Vegetable Physiology' (Bohn), p. 184.

† Principles of Biology, vol. i. p. 182.

It is by the application of this ingenious hypothesis, Mr. H. Spencer explains the phenomena of Genesis, Heredity, and Variation. "If each organism," he says, "is built up of certain of these highly plastic units peculiar to its species—units which slowly work towards an equilibrium of their complex polarities, in producing an aggregate of the specific structure, and which are at the same time slowly modifiable by the reactions of this aggregate—we see why the multiplication of organisms proceeds in the several ways, and with the various results, which naturalists have observed."* It must be remembered, however, that the phenomena of Genesis, Heredity, and Variation have relation to an organism whose prior existence with certain functional tendencies is supposed.

The hypothesis may be a convenient mode of explaining certain physiological phenomena in a body whose organic functions are already established. But how can it account for the *primitive* organic phase of life? To say that certain chemical units "combine into units immensely more complex than themselves," thus forming the *blastema* and the *cambium* from which the fundamental animal and vegetable tissues are derived, explains nothing as to their real "origin." It asserts merely that vitality is associated with greater complexity of atoms, without furnishing any evidence that there is any such connection as cause and effect between the two phenomena. There is, in fact, no more reason for supposing that the formation which distinguishes "organic matter in a state of homogeneous aggregation" can exist without preceding *function*, than that "organic matter in a state of heterogeneous aggre-

* Principles of Biology, vol. i. p. 287.

gation" can thus exist. The structure of the cell, which Mr. H. Spencer thinks is the result of the peculiar power of arrangement he ascribes to the *physiological units*,* is really dependent on the activity of a special function which resides in the organic blastema or cambium, the formation of which must equally be dependent on the influence of a preceding functional tendency.

Let it be supposed that the blastema and the cambium are the result merely of the more complex arrangement of their chemical units, and it follows, not only that "spontaneous generation" may be confidently looked for, but that the artificial formation of organized matter may be accomplished. The idea of spontaneous generation would, however, appear to be now given up by most of its recent supporters; and it is seen to be untenable by the advocates of the theory of natural selection,† who, nevertheless, still look forward to the time when matter may be "built up" into an organized form. That the artificial formation of an organism will ever be accomplished is utterly improbable. The advance made towards it is as yet very small. Its chance of ultimate success may perhaps be judged of from the remarks of Dr. Gregory, who says, "It is true that chemistry has succeeded, in some cases, in forming artificially certain compounds which occur as products of organized life, such as Urea, Formic Acid, and Oil of Spiræa; but, in the first place, most, if not all, of these require for their production the aid of an organic product: thus, Formic Acid is produced from Starch, Oil of Spiræa from Sali-

* Principles of Biology, vol. i. p. 183.

† See Professor Huxley's 'Origin of Species,' p. 81.

cine; and although Urea may be obtained from Cyanic Acid and Ammonia, it is doubtful if either Cyanogen or Ammonia can be obtained, except from organized compounds, directly or indirectly. Secondly, it is particularly to be noticed, that we have not yet succeeded in forming, artificially, either an organized tissue, or even any one of the compounds (albumen, etc.) of which such tissues are made. Those organic compounds which have been artificially formed, are invariably *products of decomposition,* or, in other words, the excretions or secretions of organized bodies: and are far less complex in their constitution than organized structures."*

The direct formation of organized matter from its chemical elements is, indeed, so far as we have evidence, wholly unknown to nature. The *merorganic* state of matter, or that in which it is ready to become vital, which Mr. Lewes—owing to his supposition that vitality depends on the *cell* formation†—assumes the necessity of, has no more real existence than the hypothetical *protein.* There must certainly be some point at which the chemical elements take the organic form, but this they never do, except as the result of the action of a pre-existing organism. In the higher animals the albumen becomes the *blastema* only after it has passed through the blood and taken the form of fibrine; while to this organic blastema the first origin of the cell is always traceable. Nor is the above statement less true of the *cambium.* This vital or organic matter, which is "the element or first appearance of every vegetable organization," is

* Handbook of Organic Chemistry, p. 3.

† Comte's Philosophy of the Sciences (Bohn), p. 153.

formed at the expense of the "most elaborated juices, and is deposited by the descending sap, generally over the passage of *lacticiferous* vessels."* The process of which it is the organic result is thus described. The ascending sap in its "progress from bottom upwards, and from within to without," is led "into the leaves and to the surface of the bark, where it is in contact with the air; then completely organized by this act of respiration,† it takes a retrograde direction, and descends for the most part through the bark, sometimes directly, sometimes by a series of circumvolutions; depositing in its passage, in the solutions of continuity ready prepared, masses of substances destined generally for the nourishment and formation of the tissues; and it at last arrives at the extremity of the roots where the absorption commenced."‡

These facts are sufficient to render it extremely improbable that organic matter can ever be formed by chemical synthesis; and the fact that organic cells must ultimately have their origin in either the *blastema* or the *cambium* is sufficient to show that the experiments made to form these cells from chemical units will ever be fruitless. There must be an antecedent functional tendency, or there can be no formation of organic material, much less of a specialized organism. The very fact of the existence of organisms so different in their vital phenomena as the animal and the plant, both of which are made up of the

* Jussieu's 'Elements of Botany' (Bohn), p. 237.

† Dr. Gregory says that *nitrogen* "is supplied to wild plants entirely by the air;" and may it not be received in the "act of respiration," which results in the organization of the descending sap?

‡ Jussieu's 'Elements of Botany,' p. 238.

same chemical elements, proves the existence of two different fundamental tendencies, which cannot be explained by any peculiarity of combination of those elements, since the function is antecedent to all such combination and directive of the form it shall take. Supposing, then, specific organized forms are accompanied by peculiar arrangement of their chemical elements, which take the form of "physiological units," the tendency of the primitive organic matter to take this arrangement has to be accounted for, and it can be only by its dependence on some still more ultimate fact. Mülder said, and materialism would be content thus to explain the difficulty with him, "Inorganic nature . . . has a tendency to form membranous, concave, spherical little bodies, in which, because of this form, new peculiar properties manifest themselves, which cannot be brought out by other forms."* This, however, expresses only half the truth, and that not exactly, since the tendency is to form, not the cell, but the organized material out of which the cell arises; and the only explanation that can be given of this tendency is that *the primitive form of matter is the organic.*

Before seeking the explanation of this primitive organization of matter, it is advisable to glance at the ultimate conclusions arrived at through the theory of evolution. These can with difficulty be distinguished from the conclusions of a pure materialism. It is true that Mr. Herbert Spencer asserts that his reasonings "afford no support to either of the antagonistic hypotheses respecting the ultimate nature of things. Their implications are

* See Comte's 'Philosophy of the Sciences,' by Lewes, p. 156.

no more materialistic than they are spiritualistic; and no more spiritualistic than they are materialistic."* This is hardly, however, the conclusion which will be drawn from Mr. Spencer's argument. He says, "The deepest truths we can reach are simply statements of the widest uniformities in our experience of the relations of Matter, Motion, and Force; and Matter, Motion, and Force are but symbols of the Unknown Reality."† This Unknown Reality, of the unconditioned existence of which we can know nothing, is the absolute Matter, Motion, and Force. All the phenomena of nature are relations of Matter, Motion, and Force; and the Unknown Cause is "co-extensive with all orders of phenomena." It is difficult to see how anything *but* Matter, Motion, and Force can be made out of an "Unknown Reality" thus postulated; or how that evolution which, "considered under its most abstract form, is a certain change in the arrangement of parts," and the cause of which "can be expressed only in terms of Matter, Motion, and Force,"‡ can have relation to Spirit. It is true that Mr. Spencer affirms that "the consciousness of an Inscrutable Power, manifested to us through all phenomena, has been growing ever clearer; and must eventually be freed from its imperfections. The certainty that on the one hand such a Power exists, while on the other hand its nature transcends intuition, and is beyond imagination, is the certainty towards which intelligence has from the first been progressing."§ This is declared to be the reconciliation of Religion and Science, but it

* First Principles, p. 502.
† Ibid. p. 501.
‡ Ibid. p. 501.
§ Ibid. p. 108.

is one which in most minds can hardly escape the charge of a pure materialism.

The fact is that the scheme of evolution, as hitherto propounded, lacks vitality. It fails utterly when it is applied to the solution of the most important problems presented by nature,—the relation between the organic and the inorganic, and between the several planes of organic nature. It fails because it denies that the phenomena of these several planes are essentially different, and affirms that the inorganic is of itself, when placed under certain external conditions, capable of rising to the organic. It is owing to the absolute impossibility, so far as the evidence presented to us goes, of such a process as this, that we are driven to believe the organic to be the primitive condition of matter. It is, however, equally difficult to account for the origin of the relative or animal life out of mere organic matter. There is a fundamental difference between them which betrays the presence of something more than matter in that "Unknown Cause" which is "co-extensive with all orders of phenomena." A similar remark may be made as to the *spiritual* life. The phenomena of life in man are quite distinct from those of either organic or mere animal vitality; and, although intimately related to, and, it may be, necessarily connected with them, the union is one of actual *addition*, as by superposition of a perfectly fresh and independent faculty. "Between these three lives," says Grindon, when treating of the life of man, "there are discrete degrees as decided as those of material nature. There is no continuity between them, any more than between mineral and plant, or between plant and

animal; each preserves its own plane of beginning and of end. . . . But, though severed by discrete degrees, the three lives are intimately bound together, the highest mediately beholden to the lowest."* There cannot, however, be that in the Relative which is absent from the Absolute; and the possession by man of the properties of animal and spiritual life requires that the Great Source of all life must have certain principles of being which bear the same relation to His infinitely extended material organism as the soul and spirit bear to the bodily organism of man.

If there are three "discrete degrees" of life in man, the "threefold being" of the Absolute necessarily follows from the principles of the hypothesis of evolution, while even admitting the eternity of matter. By *matter*, however, must be understood that "absolute reality" which is "related to the matter we know as cause to effect."† This relative matter has reference only to the finite; and although necessary, as being that by which the finite can alone become embodied, yet it can be viewed only as in a state of degradation, from which the whole process of evolution is a gradual ascension, reaching its perfect result only when the complete organization of matter is attained, and matter in its degraded form is cast off. Inorganic matter, although the starting point of the evolution of the Relative, is unknown to the being of the Absolute; and therefore if matter be eternal, it must be as organic, its forces being the energy of its vitality. The universe may thus be described as an in-

* Life, 2nd edit. p. 351.

† 'First Principles,' by Mr. Herbert Spencer, p. 233.

finitely extended and eternally existing organism. The possession, however, by man of the principles of animal and spiritual life requires the prior existence of something analogous in nature to them from which these principles can have been derived. There must, in fact, according to the reasoning of the materialistic argument, be an eternally existing principle of being from which the soul of the animal organism can have had its origin; and thus must it be to enable us to account for the existence of the higher *spiritual* principle which we see in man. But, as in phenomenal nature we see the three discrete degrees of life co-existing in a certain relation,—the lower being essential to the existence of the higher, and the higher again giving a new direction to the activity of the lower, —we are justified in affirming that a similar relation exists between the several co-existing, eternal, principles of being which thus reveal themselves. These three degrees of Absolute Life cannot be independent of each other; and therefore that Eternal and Infinite Existence from which all phenomenal nature has been evolved, must, although manifesting His activity through a material organism, yet be essentially a spiritual being, as possessing, not only the principle of animal vitality, but also that of the spiritual life.

As, however, nature is an evolution from the Divine Organism—man being the final result of such evolution,—we must see in man and nature a representation of God, who, therefore, is not the Unknowable Existence which the hypothesis of evolution, as stated by Mr. Herbert Spencer, requires. God cannot be unlike that which has sprung from Himself,—except only so far

as He is infinite and perfect, while *it* is finite, and, as such, imperfect. Moreover, knowing man and nature, we have a conception—incomplete because limited—of God Himself, and this conception must widen, and therefore become more perfect with every increase of our knowledge. Hand-in-hand, therefore, with the development of science, there should be an ever-increasing veneration for that Being, the laws of whose relative existence science expresses. We have here the only ground for reconciliation between science and religion.

NOTE.

FREE-WILL.

The question of the "freedom of the will" is intimately connected with the subject of the preceding chapter, but it is one with which the present treatise has no direct concern. It may, however, be used as a test of the value of the theory as to man's nature sought to be established; and, if the problem presented by it is satisfactorily solved, the theory may be considered as embodying the actual truth. The conditions of the problem are as follows,—given that every volition is preceded by a motive which governs the nature of the resulting action, to reconcile the necessity of this volition with

freedom of action or will. In dealing with this problem there are three terms to be considered—the mind, the motive, and the will. These, however, may be reduced to *two*, for it was shown at a preceding page that the *will* is simply an expression to denote the external activity of the soul or mind. When, therefore, it is asked whether the will is free, the question can only have relation to the soul. The soul and the motive are thus seen to be the related terms, and the problem of free-will resolves itself into a simple question as to whether or not the *soul* can in any degree control the influence of the motive by which its action is governed. Now, those who deny freedom of will are in one sense quite right; for it is clear that the soul must, by its very constitution, be guided by some motive, and therefore the soul is not free, so far as its mere action is concerned. But cannot the soul control the *mode* of its action, or, in other words, has it no power over the *motive?* The explanation of the influence of a motive over action is, that when the former agrees with the inclinations, it is accepted, and when disagreeable to them, it is rejected. In most cases this result is attained almost instinctively, the resulting action, when the motive is agreeable, being simply an instance of what is known as habit. There must, nevertheless, be *some* "feeling" of the motive, however intuitively it may appear to be responded to; and it will not be denied that the mind has the power of fixing its attention on the motive, and considering its character. If the mind now decides that the motive is a proper one, that is, if it feels the motive to be agreeable, it shows its decision as an act of will. This *act of will* instinctively follows

from the determination arrived at as to the character of the motive, and therefore it is *necessary*. It is, however, preceded by thought in relation to the motive,—in fact, by a process of reasoning as to its propriety or otherwise, every motive being necessarily accompanied by its contradictory; and contrary or opposing motives being called into play by the law of association, and the soul determining (although sometimes the process is often not apparent) between their conflicting claims,—and so far the volition, *i. e.* the soul's action is *free*. It may be said that whatever number of motives are presented, the soul must obey the strongest, and therefore it is still not free. But here we see the importance of the reflective faculty. Every motive that is reflected on has a tendency to become either stronger or weaker, according to its character. Supposing, therefore, a bad motive is presented to the soul, which has an inclination to obey it, the contradictory good motive which instinctively accompanies the other may, by being reflected on, become so powerful as to prevent the soul from acting. Freedom is shown, therefore, not in relation to the will, but in relation to the motive, and it consists in the power the soul possesses, by virtue of its association with the higher spiritual principle, of increasing or lessening the influence of a motive by reflecting on its character or on that of contrary or opposing motives. Freedom of will, therefore, depends on reflection; and with the absence of the latter must be an equivalent loss of the former. Thus it is that the *wilful*—those who *will* not reflect; the *ignorant*, those who *cannot* reflect; and the *vicious*, whose reflective faculty is asleep—may almost be said to have

no freedom of will. Of the brute creatures it is, indeed, absolutely true that they have no such freedom, its exercise being dependent on the possession of the spiritual principle, and of the power of reflection which is its chief attribute. Animal action *instinctively* follows the perception of a desired object and the choice of the means to attain it. They have no thought as to the *propriety* of the action, being that about which the reflection is active, and therefore they have no "freedom" of will.

APPENDIX I.

In the following vocabulary, words in several classes of languages, some of which are far distant from each other, are compared. It must not be supposed, however, that the verbal affinities there discoverable are all that could be pointed out. Only a few of the commonest words have been compared, and probably more extensive research would afford much fuller results.

The letters, etc.,which are inserted after the words in the several columns, refer to the following languages :—

Hottentot.—N. *Namaqua;* C. *Corana;* B. *Bosjesman.*

Cafre.—S. *Sechuana.*

Mozambique.—Sa. *Sofala;* In. *Inhambane;* M. *Maravi;* T. *Tette.*

Australia.—K. *Kamilaroi* (Darling R.); W. *Western Australia;* S.W. *South-Western Australia;* Wir. *Wiradurei* (Wellington); Tu. *Turrubul* (Brisbane R.); D. *Dippil* (Moreton B.); C. B. *Champion B.;* Sy. *Sydney;* T. *Tasmania;* P. *Pikumbul* (Caladoon); Ko. *Kogai* (Maronoa R.); N.W. *North-Western Australia.*

Polynesia.—S. I. *Sandwich Islands;* Mq. *Marquesas;* Tai. *Tahiti;* To. *Tonga.*

Malay and Papuan.—Bg. *Bugis;* J. *Javanese;* Ter. *Ter-*

nati; Wg. *Waigiou*; V. *Vanikoro*; Ti. *Timouni*; Ba. *Bali*; N. C. *New Caledonia*; I. A. *Indian Archipelago*; Ph. *Philippine Islands*.

The letters U. S. refer to the vocabulary compiled by Mr. Hale, of the United States Exploring Expedition. Where there is no reference, the word is identified by the name at the head of the column where it occurs.

When comparing the words given below, it is necessary to bear in mind that *all* the vowels and various consonants are interchangeable, and the following Table, which shows the consonantal interchanges exhibited in the several Indo-European languages, will be found useful:—

b, *v*, *i*, and *m*.	*d* and *l*.	*y*, *l*, *j*, and *h*.	*k*, *c*, *g*, and *q*.
ph, *f*, *p*, and *h*.	*l* and *r*.	*t*, *s*, and *z*.	*i*, *j*, and *y*.
v and *w*.	*t*, *d*, and *th*.	*k*, *c*, and *z*.	*x* and *j*.
v, *b*, *w*, *f*, and *g*.	*b* and *m*.	*b* and *p*.	*w*, *v*, *g*, and *q*.
v, *f*, and *m*.	*m* and *n*.	*c* and *s*.	

These interchanges will probably be found to be still more numerous in the primitive languages.

It is, however, not merely by change of letters that words become altered during transmission. They may be increased, either by the addition of prefixes or affixes, or by the insertion of fresh letters; or they may be lessened by an opposite process, the original root being sometimes completely lost. Words may, moreover, undergo a series of these transformations, after having been first inverted. No wonder, therefore, it is often difficult to recognize the affinity of words, having analogous meanings, in distant languages. Hence, also, the importance of using intermediate languages, if possible, as elements in the comparison.

COMPARATIVE

	Coptic.	*Hottentot.*	*Cafre.*	*Mozambique.*
1. Woman	himeh	tarakores kois (N.)	mo-sari (S.) sekazi (U.S.)	manakadsi (Sa.) makari (Sa. U.S.)
2. Mother.	mau (*Chinese*, mou)	choa (B.)* xkus (N.) eijoos (E.)	moacho (S.)	
3. Father .		up, abop (N.) abob (C.)	ubawo babo (U.S.) hara (S.)	baba (Sa. U.S.)
4. Son . .		oaap (N.) t'koang (B.)	indo-dana nguana (S.)	muana (In.) (a *child*)
5. Head .	ap, aphe .	dannap (N.) t'noa (B.)	ikanda, inkloko	
6. Hair .	fo. bo (*Chinese*, fo)	cup (N.) t'uki (B.)	un-wele	vudsi (Sa.)
7. Mouth .	ha	toup, ams (N.) t'kchamma (C.)	mo-loumo (S.)	muromo (Sa.)
8. Tongue	las, aspeh	nams (N.) t'inn (B.) tamma (C.)	loleme (S.)	lilime (In.) didimu (Sa.U.S.)
9. Teeth .	naghi (*Chinese*, tchee)	t'kei (B.) t'kuhm (C.)	amenyo	makwao (In.) manu (M.)
10. Nose .		t'geub (C.) vguip (N.) t'nuhntu (B.)	ongko (S.)	ipula puno (M.)
11. Eye .	bal	mus, moep (N.) t'saguh (B.)	matlo (S.) iliso, amehlo (pl.)	mahio (In.) musu (*Chinese*, muh)
12. Ear. .		t'naum (C.) t'no eingtu (B.)	indhlebe	indseve (Sa.) niaru kutu (Te.) nzitue (Sa. U.S.)
13. Hand .	taat	qumi, oemma (N.) t'koam (C.) t'aa (B.)	isandhla seatla (S.)	nyara (Sa.) nta-ta menya (In.)

* In the Kooch dialect of the Himalayas, "woman" is "*Beti choa.*"

VOCABULARY.

Malagasy.	*Australian.*	*Polynesian.*	*Malay.*
	inar (K.) ya-go, yock (W.)	vahine (S.I.)	makunrai (Bg.)
	a-go (W.) eecher (W.) eiya (S.W.) pujang (Tu.)	kui (U.S.)	ibu bok (I.)
baba, rai	bobbin (D.) buba (Tu.)		bapa
zana dahe zanak	kumma (D.)	tama (Mq.) keikikane (S.I.)	anak laki
lona, loha	kaat (S.W.)	oupoho (Mq.) penu (U.S.)	dopolo (Ter.) ourouni; capala
voul	kum (Tu.) tegul (K.) chow (S.W.)	voho (Mq.) fulu (U.S.)	bou-lou fou (*Ende*)
mulu, vava	tunka (D.); taa (S.W.) y'ham-ane (W.) canea (T.)	vaha (S.I.) outou (Tai.) fafa (U.S); mana	mulut
lela	mamana (T.) yel-lign (C.B.) dun-num (D.) tarlin (S.W.) tdallung (W.) tullum (Sy.)	lelo (S.I.) alelo (U.S.)	lida, bassa damaran (Wg.) ilat (I.)
nifi nigie (*Fulah*)	ee-ra-gee (W.) pegui (T.) orlock (S.W.)	niho (Mq.) nifo (Ts.)	ghigi ougne (V.)
uru, orong, orouk	chungulet (W.) mool-ya (S.W.) muru (K.) muguiz (T.) nokoro (K.)	ihu (Mq.) isu (U.S.)	idoung enou (Ti.) kunguh (Ba.)
mass, maso, tongoulou	mail, mee-loo (W.) mil (P.); muel (Sy.) meal (pl. W.)	mata (Mq.)	mata maleo (V.)
tadign, talinh, tsinguinta	cuegni (T.) toon-ga (S.W. twank (W.)	talinga	guening (N.C.)
tahan, tang	murra dukkur (Tu.) marr (S.W.) mara (P.) anamana (T.)	iima (S.I.)	tangan

	Coptic.	*Hottentot.*	*Cafre.*	*Mozambique.*
14. Foot. .	phat, pat	t'noah (B.) veis (N.)	lo-nao (S.)	inyao
15. Breasts		samku (N.)		tsombo (In.) zuku (Te.)
16. Stomach	kaf	t'kautu (B.)	mo-chohru (S.)	irugulu
17. Sun .	ra, ree (*Chinese*, ge)	t'koara (B.) sorrees (N.) sorohb (C.)	ut-satsi (S.) ilanga	dzua (M.) nzua (Sa. U.S.)
18. Moon .	joh (*Chinese*, yue)	t'kaukaruh (B.) t'khaam (C.)	kohri, kueri (S.) inyangka (U.S.)	mugi-ma (In.) muedze (Sa.)
19. Star .	sion (*Chinese*, sing)	kamiros (N.) t'koaati (pl. B.)	inkwenkwezi inkanyesi (U.S.)	nyenyeze (Te.) itodoa
20. Night .	bouto	zughup (N.)	ubusuku bosigo (S.)	busiku (Sa.)
21. Water .	mau, meu, emmoy	cum, t'kamma (C.) t'kohaa (B.)	amanzi	mati (In.) madze (M.)
22. Fire .	koht	t'aib (C.); t'jih (B.); eip (N.)	umlilo	munillo (In.) moto (M.)
23. Wind .	teeou	kuap (N.) t'koaab (C.) t'kooih (B.)	pekhou moea (S.)	pepu (Te.)
24. Dog .	ouhor	arrieb (C.)	inja	garu (M.)
25. Ox. .	ahi, mose	gumap (N.) dibi (B.)	in-kabi komo (S.-U.S.)	muombe (M.)
26. Sheep .	esau	t'guhb (C.)	ongkuh (S.)	gundatta (Sa.)
27. Pig. .		hagup (N.)	ingulube	kumba (Te.)
28. Bird .	(*Chinese*, neaou)	anis (N.) t'kanni (B.)	nonyane (S.) nyoni	nyoni (In.)
29. Black .		vnu (N.) t'nua (B.)	nchu (S.)	sifu (Sa.)
30. To eat.	ouem	qu (N. to *feed*) haa (B.)	tya jah (S.)	ku-ria (Te.) ku-ata (In.)

Malagasy.	*Australian.*	*Polynesian.*	*Malay.*
peh	tjenna, maat (S.W.) tinna (Sy.)	vae	betis
nono (sing.) soundrara (sing.)	ngummu (K.) amung (D.)	fatu (Mq.) uma (sing. U.S.)	sou (I.A.)
kibou, vonok	choe-do (W.) kob-ul-lo (S.W.) corpul (W.)	fenufanu (Mq.) kete (U.S.)	prout
massou	yarar (K.) djaat (Sy.) kuiyar (Tu.) chaat (S.W.) ngan-ga (S.W.)	la	hari arao (Ph.) rias (Wa.)
azohoro	kakurri, me-mak meuk, me-ga (S.W.)	mahina (Mq.)	
anakintan wascia	chindy (S.W.)		
	ngunnu (Tu.) koombar (S.W.) nurung (Wir.)	po, bo luki (U.S.)	peuting (Ba.)
ranon, ran	muga, koin (S.W.) appa (W.) mogo, amu (Ko.) ow-wa (C.B.)	vai (Mq.)	aier, appa chai (*Sonda*)
mote, af, afon, vih	wi (K.) gira (D.) wad-jan-o (W.) leipa (T.)	ahi afi (U.S.)	afi, api hiepp (N.C.)
anghin, ainh	geru-pa (C.B) maar (W.)	metani (S.I.) mohake tokelau (U.S.)	oudou (N.C.)
amboua, kiva	mirri (Tu.) ali (N.W.) toort (S.W.)	ouri (Tai.) kuli	anjing
anghomb			lembu
angondri, osa			
lambou		puaka (Mq.)	wigung (I.A.)
ankan	ma-ro mouta (T.) dibilain (Wir.) mulu (D.) muru (S.W.) kurun (Tu.)	manu (Mq.)	manu (N.C.) bourou ouri (V.)
mangouri homan	guera (T.) taa, anger (W.)	nahu kai (U.S.)	houyou (N.C.) aenne (Wa.)

APPENDIX

THE remarks made as introductory to Appendix I. are equally
be borne in mind when comparing the numerals in the fol-
the first column, denote that the numerals in question were

TABLE OF

AUSTRALIA:—	1.	2.	3.	4.
Queensland (*Dippil*) .	kalim, kinyara	bullar	kurbunta, boppa	bullargira bullar
Moreton B. (*Turrubul*) .	kunnar	budelar	muddan	(2 + 2)
N. S. Wales (*Kamilaroi*)	mal	bular	guliba	(2 + 2)
„ (*Paiamba*) .	kabuin	purayu	guruamda	
„ (*Kingki*) .	pieya	budela	kunnun	
„ (*Baraiper*) .	keiarpe	pulette	puleckwia	
„ (*Yakkumban*)	neetchar	parkulu	parkul-net-charri	
„ (*Aiwang*) .	meiter	tangkul	tangkumeiter	
„ (*Wiradurei*, U.S.)	ngunbai	bula	(1 + 2)	
„ (*Parnkalla*)	kuma	kuttara	kappo	
„ (*Peel River*, U.S.)	peer	pular	purla	
„ (*Newcastle*)	wakol	buloara	ngoro	
„ (*Sydney*) .	ouagle	bola	broui	karga
„ (*Jervis Bay*)	metann	poular	kalarba	talkounn
Victoria (*Port Phillip*) .	mangorut	pollai		
S. Australia (*Gulf of St. Vincent*)	mangouit	pollai	mangouit (?)	araish
Head of A. Bight . . .	gumera	kootera		
W. Australia	kain, kine	good-jall, ka-du-ra	ngar-rill, war-rang	
„ (*K. George's Sound*) .	ken	kadjen	taan	arr
„ (*Portland B.*)		bular		
N. Australia (*Watchandie*)	co-ote-on	a-tau-ra		
„ (*V. Diemen's Gulf*) . .	warat	nargarik	(1 + 2)	
„ (*Mnt. Norris Bay*) . .	warat	nargarik	(1 + 2)	
„ (*Croker's Isld*).	roka	orialk	(1 + 2)	
„ (*Port Essington*) . .	erad	nargarik	nargarik-elerad	
„ (*Popham B.*)	motu	lawitbari	(1 + 2)	
Tasmania (*P. Dalrymple*)	pammere	katebouwe		
N. Caledonia	parai	paru	parghen	parbai

applicable here. The interchange of letters, especially, should
lowing Table. The letters U.S., after some of the names in
taken from Mr. Hale's Vocabularies, already referred to.

JMERALS.

5.	6.	7.	8.	9.	10.
).					
re ı	(5+1)	(5+2)	(5+3)	(5+4).	
	paltann	koutcho	poulla-gounn		paltannu.
	panimghi	(5+2)	(5+3)	(5+4)	karde. parunich.

	1.	2.	3.	4.
N. Hebrides (*Mallicollo*)	tsikai	e-ua	e-roi	e-vatz
„ (*Vanikoro*)	tilou	tarou	telou	taoa
Fiji (*Viti*, U.S.)	ndua	rua	lolu	va
Solomon Islands (*Guadalamar*)	tai	arua	oru	
New Ireland	tik	rou	toul	hat
Loyalty Island (*Uea*)	pacha	lo	kun	thak
Moyse	kaou	roa	tolou	wati
Papua (*Dory*)	saye, ocer	douye, sourou	kior	fiak
„ (*Alfourous* of *Lesson*)	tour	kir	nour	ouat (bat)
Arru Islands	itu	rua	lasi	ka
Timor and Kissa	ita, isa	woror	wokil	wo-akha, n
Rotti	isa	dua	telu	a'a
Flores or Ende	sa	zua	telu	wutu
Moluccas (*Ceram* and *Sangu*)	sembua, tekura	darua	tatelu	epa, pat
„ (*Guebe*)	pissa	pilou	pitoul	piffat
Waygiou	sai, ossa	doui, soro	quioro	fiaque, kia
Pelew Islands	tong	orou, urung	othey	oang, awar
Caroline Isds. (*Eap* or *Yap*)	rep	ru	thalep	eninger
Ladrones (*Guam*)	asha	ougoua	toulou	fadfad
Radack Islands (*Mille*, U.S.)	djun	ruah	tilu	emen
Kingsmill Islands (*Tarawan*, U.S.)	te	ua	teni	a
Marshall Islands (*Ualan*)	sha, sa	lo	tol	een, eaa
Sandwich Islands	akahi	aloua	akolou	eha
Easter Island	ko-tahai	rua	toru	haa
Gambier's Group (*Mangareua*, U.S.)	tai	rua	toru	a
Marquesas (*Nukahiva*, U.S.)	tahi	ua	tou	ha, fa
Paumotua (U.S.)	rari	ite	ngeti	ope
Society Islands	tahi	rua	toru	maha, haa
Cook's Islands (*Raroton-ga*, U.S.)	tai	rua	toru	a
Friendly Islands (*Tonga*, U.S.)	taha	ua	tolu	fa
Union Isls. (*Fakaafo*, U.S.)	tasi	lua, ua	tolu	fa
Tobi or L. North's Is. (U.S.)	yat	glu (gulu)	ya	uan
Rotuma (U.S.)	ta, taha	rua	tholu, zolio	hake, ek
New Zealand (U.S.)	tahi	rua	toru	wa
Javanese (*ordinary*)	sa, siji	loro	telu	papat
Ombay	satu	dua	tiga	ampat

5.	6.	7.	8.	9.	10.
a	su-kai	whi-u	oroi	whi-vatz	singeap.
	taouo	tembi	taoua	taurou	kaoulouga.
	ono	vitu	walu	thiva	tini.
	wonn	his, hil	wal	souok	songli.
mb	lo-acha	lo-ala	lo-kunn	lo-thak	te-vennete.
	eno	loijtfon	eialou	siwa	sangafoulo.
ima	anem	sik, fik	ouor	siou	samfour.
	imbitoure	imbikir	imbinour	imbebat	houanguire.
	dubu	dubem	karua	teri	urfafahia.
ıa	wanam	woiko	wǫah	wohi	itaweli.
	neh	hitu	falu	oui	sanguhulu.
	limasa	limazua	ruabutu	trasa	sabulu.
	nong	pitu	walu	sioh	mapuru.
e	pounnoum	piffit	poual	pissiou	otcha.
	onem	fique, sik	ouaran	siou	sampouru.
	malong,lollom	oweth	tei, ai	etew	makoth.
	nel	medelip	meruk	merep	ragach.
	gounoum	fiti	goualou	sigoua	manoua.
	dildjino	dildjidji me djuun	adjino	addili me djuun	adjungol, dungol.
	ono	iti	oanu, uanu	rua	tengaun, te-buina.
omm	holl, oun	ut	wal, oual	ea, hẹo	singoul.
	ono	ahitou	ararou	aiva	oumi.
	hono	hiddu	varu	hiva	anahoru.
	ono	itu	varu	iva	ngauru.
	ono	hitu, fitu	vau	iva	onohuu.
	hene	hito	hawa	nipa	horihori.
	hono	hitu	waru	iva	ahuru.
	ono	itu	varu	iva	ngauru.
	ono	fitu	valu	hiva	honofulu.
	ono	fitu	valu	iva	fulu, nafulu.
(nim)	yawor	yavish	yawa	yatu	yasek.
	ono	hithu, etou	valu	siva, ahiva	sanghulu, chamiom.
	ono	witu	waru	iwa	ngahuru.
	nemen, nam	pitu	wolu	sanga	sapuluh.
	anam	toujou	delapan	sambelan	sapoulou.

	1.	2.	3.	4.
Madura	sah	dua	tilu .	papah
Borneo (*Dyak*) . . .	ije	duwe	telo	epat
Celebes (*Bugis*) . . .	chedi	dua	talu	apa
Prince's Island. . . .	hegie	dua	tollu	opat
Malay (*general*) . . .	satu, sa	dua	tiga, talu	ampat
Sumatra (*Lampong*) . .	sye	rowah	tullu	ampah
„ (*Singkal Batta*)	sada	duwa	telu	ampet
Enganhe	dahei	adoea	agoloe	aopa
Sunda (*ordinarily*) . .	hiji, sa, seji	dua	tilu	opat
Nicobar Islands (*Kar Nicobar*)	hang	anatt	looay	fon
Philippines (*Ilocos*) . .	meysa	dua	tal	eppa
„ (*Abac* or *Capul*)	addangan	duangan	talongan	patongan
Formosa	ita	lusa	tolo	s'pat
Keeling Islands (*Cocos*)	taa, taci	loa, lua	tolou	fa
Amsterdam Island . .	tahae	eoua	touroa	afaa
AFRICA :—				
Madagascar	isa	rua, arui	telu	efatra, efutchs
Hottentot	koise	kamse	aruse	guatoi
„ (*Namaqua*) .	ckui	ckam	gnona, guna	haka
„ (*Bosjesman*) .	t'ko-ai	t'kuh		
Comoros Islands (*Anjoane*)	modze, mosa	bili, zili	taru, ziraru	nae, zinae
Msambara	mosi	kaidi	katatu	kanna
Wanika	emmenga	embiri	tahu	enne
Suhaili	moze, emmodshi	bizi, pili, embili	raru, tatu	ine, enne
Mudjana (U.S.) . . .	yimo, truno	gaviri, ebiri	gatatu	mutyetye
Makonde (U.S.) . . .	moyi, moji	ividi	itatu	ityetye
Makua (U.S.)	modya	pili, medi	mararu	mashishe
Takwani (U.S.) . . .	mosi, mothi	mili, viri	viraru	vinai
Maravi	modze	viri, ziviri	tatu, zitatu	nai, zinai
Mozambique	moza, m'moze	pili, miuli	tara, miraru	sese, misese
Sofala (U.S.)	posi	piri	tatu	nai
Nyambana (U.S.) . . .	gingwe	givire	ginaro, tinharo	gimune
Matibani	mosa	pili	taru	te
Zulu Cafres (U.S.) . .	koenye	mabini	mat'hatu (?)	ine, mani
Bechuana (U.S.) . . .	moesi	peri	taru	ini, nue

	6.	7.	8.	9.	10.
	namnam	papito	babalu	sasangah	sapulu.
	jebawen	uju	hanya	jalatien	pulo.
	anang	pitu	arua	ascra	pulu.
	gunnap	tudju	delapan	salapan	saponlo.
	anam	tujuh, tugau	delapan,salapan	sambilan	sapuluh, pulo.
	anam	pitu	wallu	siwah	pulu.
	anam	pitu	walu	siwa	sapula.
	akiakia	alimeiadoea	alimeiagoloe	alimeiaopa	taha, poeloe.
	genap	tuju	delapan	selapan	sapuluh.
	tafool	sat	haware	matiootare	som.
	ninem	pito	oalo	siam	sangapulo.
ın	anniuuangam	pitongam	ualongam	siamongan	avantun.
	unum	pecho	halu	siva	polo.
	houno, houne	filou, fitu	walo, walu	ywou	ongefoula.
luwi,	enina, eœning	fitu	valu, oualo	sivy, sini	fulu, fut.
ı	krubi	guatigna	guinka	tuminkma	gomatse.
uru	qnani, nanni	hu, hangku	xkhaisi, 'kyse	goisi	disi.
ntsanu	tandaru	fukare	nane	sinda	kumi.
o	ententatu	fungate	nane	kenda	kumi.
	tandaho	fungahe	nane	kenda	kumi.
ıatanu	sita, setta, fun-jateh	saba, sabaa, mukendeh	nane	kenda	kumi.
u	mzanayi mo midi	mzanaziviri	mzanazitatu	mzana-mtyetye	ditsume.
ı	vitanu na mosi	vitanu na viri	vitanu na viraru	vitanu na vinai	makumi.
ı	matanu na in modya	matanu na in medi	matanu na in mararu	matuna na in mashishi	muloko.
	nhyanu na moji	nhyanu na ividi	nhyanu na itatu	nhyanu na ityetye	kumi.
	intandu	dzimbi	divere	mwinda	kumi.
nitanu	tanu na moza	tanu nabili	tanu nataru, tanu ssesse	tanu na-sese, luko	muloko, mino komili ssesse.
	tanhatu	tshinome	sere	femba	kumi.
	nkanayuna	nkana-tivere	nkana-tinaro	nkana-mune	ikume.
	tana mosa	tana taru	tana pili	loco	loco nakeje.
	isitupa	kambini	bonani, toba menimbina	toba no menyi	ishumi.
t'shanu	yataru	shupa	heramenoana meberi	hera monoa-na monge-hela	kume, shume.

	1.	2.	3.	4.
Benguela (U.S.) . . .	mosi	vali	tatu	kwana
Angola (U.S.)	moshi	kiadi, iali	tatu	wana
Gura (see *Fulah*) . .	gunu	teri	tarri	tina
Bunda	motshi	yari	satu	uana
Congo (U.S.)	mosi	vali	tatu	kwana
Sonho	motshi	sole	satu	maia
Mandongo	omo	boelli	batati	bana
Loango	boose	soli, quari	tattu	ena
Orunggu	mori	bani	raru	nai
Kambinda (U.S.) . .	mosi	ioli	tatu	iya
Mundjola (U.S.) . . .	imo	biere	bitedu	bina
Ogobai R. and its Tributaries :—				
Fan tribe	fo, fon	bei, be	la, lare	ne, nne
Obongo	moi	bei	metato	djima
Ishogo and Apingi . .	mpoco	mbani	tcharo	inai
Ashango	moshi	bibei	biraro	bina
Njavi	mon, mo	bioli	betato	bena
Bakalai	iewotau	beba	bilali	benai
Ashira and Apono . .	moshi	bei	irero	irano
Commi	mori	mbani	raro	nai
Gaboon R. :—				
Mpongwe	mori	bani	ncharo	nai
Shekiani	wote	iba	bitashi	inei
Mbenga	mpoco	ibali	ilala	inai
Nibulu (*Corisco Bay*) .	kabala	balya	betwu	banna
Ediya (*Fernando Po*) .	buli	eba	bitta	bieli
Biafra :—				
Dwalla or Camerum . .	e'oue, dua	beba	belalo	benei
Isubu	yoko	biba, eba	bilalu	bine, enne
Barihoh	ehoh	eba	allan	annin
Bayung	'mmo, wako	'mbai	'ntet	'nkwa
Abo	yea, fia	ba, eba	bea	tombina
Mandinga	omo	miri	teti	mina
Lorangga	dudin	pali	yaka	ise
Appa	mom	behari	witari	binyen
Old Calabar :—				
Moko	ahoh	ubba	ala	enni
Efik	ket	eba	ita	inang
R. Niger :—				
Otam	edji	ebba	essa	enne
Ibo	moo	'mbo	etto	ello
Akrika (*New Calabar*) .	inga	imeig	terre	hene

.	6.	7.	8.	9.	10.
	pandu	panduali	kienana	kilkui	kui.
	samanu	samboadi	naki	iooa	kumi.
	diegum	deitiri	dietari	dietina	azia.
	samanu	sambuari	nakwi	ivoua	kunhi.
	masambanu	atsamboadi	anano	aooa	kumi, kwini.
	samanu	sambuari	nane	eoua	kumi.
	basanu	'ntshumi	'mpoomo	kifa	kumi.
	sambaan	sambueri	nane	voa, iwoa	kumi.
	oruva	oruvinum	enani	elegum	equmi.
	sambanu	sambaida	nana	voa	kumi.
	bisienmu	ntshamu	mpuo	uwa	kumi.
nu	sheme, sam	zangoua, sangwa	moum, ouam	iboum, ebou	woooo,aboum.
	samouna moroba	nchima	misamouna	nchouma	mbo-ta.
10	nchambo	pombo			
	samouna	nchamou	mponbou	oua	igoume.
	naiewotau	bitani-nabiba	bitani-na bi-lali	bitani-na benai	dioum.
)	inigue, inana	kambo moshi	kambo bei		igoum.
	roua	roiguenon	ananai	enongoume	igoume.
	roua	roaguenon	ananai	inongoum	igoum.
	itani me wote	itani ne iba	itani ne itachi	itani inei	dioum.
	otoba	embouaidi	loguambi	ibouhi	dioum.
	baradu	balfa	churi	nua	fih.
	dahah	dahah la buli	dahah la eba	dahah la bita	biyuh.
	motoba	samba	lumbe	iboua	doom.
ettani	matuba	samba	lumbi	dibuka, dibua	isaka, doom.
	'ntoo	saamba	dwam	abu	dium.
	'ntobo	shamba	ifam	buo	douma.
	bisamo	sambah	joam	kibu	doom.
	isam	sambadga	nana	wa	kumi.
	surada	sura pali	sura yaka	sura ise	voom.
	witarutari	kondo	vinyenyen	wila	pue.
	'nto	samba	tua	ubbu	dium.
	ituinket	itiaba	itieta	usuket	duub.
	esagesa	sinia	enigani	simaoubu	ubuh.
	essi	assa	essata	etoita	iri.
	sunu	sonnama	innini	essini	oyi, atti.

	1.	2.	3.	4.
Kouri Class :—				
Ingwa	lakwo	ayee	attah	anahi
Mosi	yandom	ji	'nta	masi
Kouri	kotum	nali	natisu	nanisu
Brinni	kade	sile	tozo	naza
Yana	'nta	ii	yanda	nasi
Benin :—				
Egarra	'nye	eva	etta	enna
Yarriba	okka	maji	maita	mena
Eyo (U.S.)	ening	egi	eta	eli
Benin	bo	be	la	nin
Popo (*Dahomey*) . . .	de	owi	ottong	ene
Mahi	de	obe	atto	eise
Mandingo Class :—				
Ghah	ekoimeh	enyo	etteh	edjueh
Koromanti	yukul	abeang	abeassa	auna
Inta	koko	anyoe	assa	anna
Fanti	eku	ebien	ebiasa	enang
Ashanti	mieku	mienu	miensa	enain
Friesko	boro	so	ta	mora
Kru	do	wai	tai	eheh
Pori	do	so	ta	hhie
Gien	do	sung	ta	nje
Timmani	pin	prun	pursas	panli
Kissi	pili	miu	'nga	iol
Vei	dondo	filla	sakwa	nani
Mendi	eta, 'nta	fili, fuli	sauwa	nani
Kong	kiddi	fila	sawa	nanu
Susu	kiring	firing	saka, shuking	nani
Mandingo	killin	foula	sabba	nani
Sego (see *Mondongo in Congo*)	omo	bol	battat	banna
Baolobo	no	han	tan	hain
Serawuli	bani	filo	sikko	narrato
Serrere or Sin	alleng	addak	taddak	nnaak
Felup	enori	kukaba	sisaji	sibakir
Gola	ngoumou	ntieh	ntai	tina
Woloff	ben	niar	niat	nianet
Poule	gottel	deddi	tatti	nai
Foulah	guh, go	didi	tati	nai
Nufi Class :—				
Anuba	neni	gobar	gotar	goune

5.	6.	7.	8.	9.	10
ı	ayobo	ayapai	anni	awai	pea.
	yon, yonwi	yopi, yopwai	ni	unwy	pia.
ıi	nodisu	nakuo	lube	lodo	tshigu.
	ludu	loba	lituzu	kemre	fuh.
	yobu	yopom	ni	'nwy	piah.
	effa	ebye	ejoh	elah	equa.
	maiffa	magi	majo	maissu	mawah.
	asifa	edye	edyo	esung	ewah.
	hahu	tabi	tara	tanin	te.
	aize	tewe, effa	tatto, edje	teine, essa	owo, ewa.
	tatu	opopo	oqueto	okano	owo.
o	epuah	pahwoe	puahnyo	neyheng	nyungumah.
	isa	ishung	awotwa	akuu	eddo.
	assi	assunno	adubrua	digra-kuno	kudu.
	essia	essong	auotui	akonu	idu.
	insia	inso	auotui	akanu	idu.
	befra	baso	batar	fara	kuba.
	neddu	meso	babia	searru	puh.
	hhoaru	hhoso	muto	muhie	puh.
	medu	mesong	medda	menje	wo.
:	dekin	derung	desas	deanli	tofut.
nu	'ngompum	'ngommiu	'ngommag	'nguenuiol	to.
	sundondo	sunfilla	sunsakwa	sunnani	tan.
lori	weta	wawfela	waiyagba, wa-sakwa	tau, taabu	pu.
ı	wora	uranfila	liaygi	konunto	tah.
olu	seni, woro	suli fering, woromola	suli ma saka, legi	suli ma nani, konunda	fu, tang.
	ovoro	oronglo	segui	kenounta	tang.
ni	bassani	'ntshani	'mpomo	uwa	kumi.
	nodo	dietan	diyien	shondo	ipou.
go	tumo	nero	sego	kabbo	taino.
:	beta follene	beta taddak	beta nnaak	beta bedak	karbagkaie.
	(5+1)	(5+2)	(5+3)	(5+4)	sibankony.
u	diegoum	dientieh	dietai	dietina	e'sia.
ım, gue-	(5+1)	(5+2)	(5+3)	(5+4)	fuk.
ı, judom					
	giue gom	guie didi	guie tati	guie nai	sappo.
e, djoi	guie guh, dje go	guie didi, tje didi	guie tati, ji det	guie nai, ji nai	sappo.
	gutswai	gutwaaba	gutweta	gutwani	[illegible]

	1.	2.	3.	4.
Nufi	worni	ogubah	ogutah	ogwinni
Shabi	warni	huswartah	huswarba	huswarni
Kissour	affu	nahinka	nahinza, aindhia	attaki
Houssa	dyah	bu	wuku	fudu
Bornou	telo, lakka	inde, endi	yasko, niesku	dago, deku
Maiha	lagen	inde	easka	fuddah
Mandara	mtaque	sardah	kighah	fuddah
Mobba or Bourgbo	ton, tek	bah	kungal	assal
Affadeh	te	anszih	ankro	gandeh
Begharmi	keddy	sub, szab	mattah	soh, szo
Dar-runga	kabenda	embirr	attik	mendih
Dar-fur	dik	ou, au	ees, ihs	ongal
Tibbo	troro	chew	aguesso, agozoe	fousso, tuzzc
Kensy and Barabra	warum	owum	tosk	kemsou
Koldagi Nowba	bera	ora	todji	kenju
Dongolawy	ouera, uerij	ouoga, owi	towsko, tuskij	kemmisk
Galla	toko, tok	lumma, lama	sedde, sadi	affur
Somauli	k'ow	lebba	sudde	affour
Danakil or Adaiel	innike, eneke	dummeh, lamei	suddeo, siddehu	fere, ferei
Bishari	engaro	molobo	mehay	fadyg
Tcheret-Agou	lo, lowa	linya, linga	shaka, shakwa	siza
Falasha	lagha	linga		sigha
Tacazze - Shangalla or Dalla	illa	bella	sette	salle
Kaffa	ikka	gitta	kedzha	haudda
Gheez	ahadu	chlectu	salastu	atbahadu
Tigre	adde	killete	selesse	erbahte
Ambaric	and	quillet	sost	arrut
Arkiko	ante	killi	selass	ubah
Schilah	juon, jan	sen, sin	crat	koost
Sergoo	eyen	shin	gradod	kozut
Tuarick	egen	sin	sharot	kuz
Berber	wan, ouan	thenat, sin	kerad	couz, cos
Canarien (*Guanche*)	nait	smetti	amelotti	acodetti
"	ben	hini	amiat	arba
Arabic	wahhid	th'nin	thilatha	arbaah
Chaldean	had	terein	telata	arbaa
Syriac	had	terein	toulto	arbaon

5.	6.	7.	8.	9.	10.
ogutso	ogusuyi	ogutwabi	ogututah	ogutwarni	okwo.
arrcke	huatwarni	huabwarabah	huartriossa	tuarni	atchabba.
aggu, norgou	iddu, tgou	ea, ye	yaha	yugga	anwy, norone.
biri	shidda	bokqua	tokquas	turra	goma.
ugu, oku	araska, arasku	tulur, tallo	wasku, husku	lekar, lilkar	miagu, meiko.
ohu	araska	tulur	wasku	likar	inagun.
elibah	n'quaha	vouyah	tisah	musselman	klaou.
tor	szittat	menrih	ejah	oddoih	ottuh.
tantih	frakro	dullo	kadegadeh	notteh	dekang.
mi	mika	shilly	marta	doso	dokemy.
	subotikeda	ow	sebateis	atih	buff.
os	sitta, sundik, oszandik	subha, szebbe	themaniar, tmani	tissi, nattise	ashurer, wejah.
fo	dessi	tutusu, torusu	ussu, yeso	issi, ishi	markoum, mordum.
didjou	gordjou	kolodou	idou	iskodou	dimnou.
tessu	farschu	fellad	eddu	ueddu	bureh.
dika, dik	gorgo, gorik	koloda	idduo, idduge	uskodk	dimega, dumming.
shan, shani	je, tsha	turbah, torba	seddet, sadeti	suggul, sagall	kudun, kudana.
shan	leh	t'dubbah	sedeid	suggal	tubban.
koroyou, konoo	leheye, lehei	melnene, melhhein	babara, bahhara	segala, sagalla	thubban, tabbana.
eyyb	essaggour	essarama	essamhay	ogamhay	togo-serama.
acqua	walta	lamta, langata	sota, sohota	sicha, tsaicha	sukka, tsikka.
ankua	wolta	langatta	saghotta	sessa	chikka.
bussume	erde	varde	quonqueda	quuntelle	quullakudde.
hucha	shirita	shebata	shiminta	videa	ashiri.
hamstu	sedestu	sabaatu	samantu	tasatu	asartu.
aumishte	sedishte	shubate	shumunte	tishate	assurte.
aumist	sedist	subhat	semint	zetti	assir.
amoos	soos	subhu	theman	tse	assur.
summost	sedise	sa, sad	temenia, tempt	tzau	meraoud, maraou.
semust	seddis	sa	tam	teza	merou.
semes	sesot	seba	tem	tesaod	merou.
soumous	sedis	set	tem	dza	meraoua.
samusetti	sassetti	satti	tamatti	alda-morana	maraoa.
cansa	sumous	sat	set	acot	marago.
khamsa	sette	sabaah	themaniah	tisaah	ashera.
khamsa	sita	sabaa	temania	teschaa	asra.
khamso	sito	sabao	temonio	teschao	asro.

	1.	2.	3.	4.
Hebrew	ehad	senaim	selsah	arbeah
Coptic	oua, ouot	snau	shemnt,	ftoou
Dravidian :—				
Telugu	oka	rendu	mudu	nalugu
Canarese	oru	eradu	muru	nalku
Tamil	oru	irandu	mundru	nangu
Tulu	oru	eradu	muji	
Malayalam	oru	renda	munna	nala
Tuda	oru	aed, yeda	mud	nonku
Gond	oru	rend, ranu	mund	nalu
Thibeto—Annamese :—				
Nepaul	di	gni	som	bla
Butan (*Changlo*)	thur	nyikching	sam	hhi
Thibet	chik	nyi	sum	zhiji
Asam (*Dofla*)	aken	ani	aam	apli
Naga (*Tablung*)	cha	ih	lem	peli
Singpho	dima	nkhong	masum	meli
Burma	tit	n'hit	thon	le
Karen (*Thoung-Chu*)	ta	ne	thung	leet
Pegu (*Mon*)	mue	ba	pai	pol
„ (*Khong*)	moe	bar	peh	pon
Siam	ming	song	sam	si
„ (*Shan*)	neun	tsong	tsam	tsi
Annam	mot	hai	ba, teng	bon
China (*Canton*)	yik	y	zam	si
Peninsular :—				
Corea	hodzhun	tupu	sai	nai
Japan	fito	fitak	miz	yots
Aino (*Kurile*)	schnepf	tup	repf	inipf
Americo-Asiatic :—				
Eskimo	attausek	marruk	pingasut	sittamat
Greenlander	attause	marluk	pingasut	sissimat
Konega (*Kadjak*)	ataudzek	azlha	pingasvak	stamik
Tshuktshe	ataschek	malgok	pigajut	ischtamat
Samoyede	op	sside	njar	tet
Koriak	onnon	nioktsh	niyokh	niyakh
American :—				
Kolouche (*Nootka*)	klek	teh	notsk	tachun
Lenape (*Delaware*)	koti	nisha	naha	nehwa
Knistinaux	pauck	nishuh	nishto	nayo
Mexico	ce, cem	omey	yey	nahui
Carib (Dominique)	aban	biama	eloua	biambouri
Othomi	na	yoho	hiu	guho
Huastica	hun	tzab	ox	tze

	6.	7.	8.	9.	10.
ı	sisah	sibeah	semounah	tischeah	aschereh.
	soou	schaschf	schmen, schmoun	psis, psit, bis	met, mnt.
	aru	edu	enimidi	tomenide	padi.
	aru	elu	entu	ombhattu	hattu.
	aru	eru	ettu	onbadu	pattu.
	aji	elu	enuma	ormbo.	
	ara	era	etta	onbadu (?)	patta (?).
	ar, or	er, ud	etthu	yen-bat	pota.
	s'arun	y'enu, yetu	anumar		pudth.
	tu	gnes	bhre	ku	chyu.
	khung	zum	yen	gu	shang, se.
	thu	dun	gyi	guk	chu.
	akple	kanag	plagnag	kayo	rang.
	vok	niath (neth)	thuth	ther (thu)	pan.
	kru	sinit	macas	tseku	si.
	k'hyauk	k'how-n'hit	s'hit	ko	tase.
	ther	nwot	that	koot	tah-si.
	ka-rao	ka-bok	ka-cham	ka-chit	chob.
	ka-dom	ka-nul	ka-ti	ka-sar	rai.
	hok	tset	pet	kau	sip.
	houk	tsat	piet	kao	sib.
ıg	sau, lak	bai	tam, tang	chin	mu'oi, taap.
	lok	tsat	pat	kou	shap.
	ishu	iki	ita	yahao	ye.
	muts	nanats	yats	kokonots	tooo.
	juwambi	aruwambi	tubischambi	schnebi-schambi	wambi.
	arwanget	aggartut	pingajoartut	settimartut	tellimartut.
	arbonec	arlech	arbonec, pingasut (?)	kollinilloet	kollith.
	ahoilune	malehonhin	inglulun	kulnhuen	kulen.
	ssewinlak	malguk	pigajunju	agbinlik	kulla.
	mat	ssiu	ssindet	chasawat	luzeju.
in	onnan-myl-langin	langin	(3 + 5)	khonnait-shinkin	mynegytkin.
	ketushu	tatushob	nitskatushu	kushak	chinkaat.
;h	kotas	nishans	ghaas	beshkunck	telou.
ı	negotoahsik	tobucop	iananaon	kagatemetatut	mitatat.
	chicace	chicome	chicuey	chicunaiu	matlactli.
ı	(1 + 5)	(2 + 5)	(3 + 5)		chonnou cabo raim.
	rato	yoto	hiato	gyto	ratta.
	acac	buc	huaxic	belleuh	[illegible]

	1.	2.	3.	4.
Guatemala (*Quiche*) . .	hun	ki-eb	dxib	kieheb
Yucatan (*Maya*) . . .	hun	ca	ox	can
Peru (*Quichua*) . . .	huc	yscay	quimsa	itahua
Aymara	mai	paya	kimsa	pusi
Chili (U.S.)	kinye	epu	kela	meli
Patagonia (*Puelches*, U.S.)	tchi	petshi	got	mala
Brazil (*Tupinambi*) . .	angepe	moccuein	mossaput	oioicudio
Botocudos	mocenam	uruhu (much)		
Abipones	initara	inoaka	inoaka yeka-ini.	

	6.	7.	8.	9.	10.
	uacguil	ueuib	uaxalkib	beleheb	lahuh.
	uac	uuc	uaxac	bolon	lahun.
	socta	canchis	pussac	yscun	chunca.
	sogta	pacalco	kimsacalco	pusicalco	tunca.
	ketcui	relige	pura	ailya	mari.
	homan	katshpetshi	posa	tshiba	tsamatska.

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